

with

# CLINICAL MEDICINE

Vol. 31, No. 12

DECEMBER, 1924

## *"Merry Christmas!"*

**D**ON'T just SAY "Merry Christmas!"  
But give some cause for cheer,  
And do for someone, something  
To bring a glad New Year.

**T**HE Christ-Child of the Manger  
(Who died upon the tree)  
Said "WHAT YE DO TO ONE OF THESE,  
YE DO IT UNTO ME."

**A**ND close to you are children,  
Whose homes and lives are bare;  
If you would have glad heart yourself,  
Make "MERRY Christmas" there!

G. H. C.

December, 1924

# DIONIN<sup>ETHYLMORPHINE HYDROCHLORIDE MERCK</sup> Cough Sedative

*In respiratory affections  
Asthma, Bronchitis, Pertussis*

Merck & Co., New York

In diseases of the BILIARY TRACT—prescribe

## Ago-Cholan

Ago-Cholan (strontium cholo-salicylate) is a potent stimulant and antiseptic for the treatment of biliary and hepatic disorders and the prevention of gallstones.

DOSE: Two tablets two or three times a day after meals.

For Sale By  
**MERCK & CO.**  
New York                      St. Louis

Two-grain sugar-coated tablets.  
Tubes of 20—vials of 50.

Literature and Samples from  
**E. BILHUBER, Inc.**  
25 West Broadway                      New York

### ***"Female Diseases" are Often Simply Manifestations of General Disorders***

When Dysmenorrhea, Amenorrhea and other similar functional disturbances are due to anemia, or to systemic debility,

### **Compound Syrup of Hypophosphites "FELLOWS"**

will often give prompt relief, by improving the functions of nutrition; and in gynecological cases, where the system is below par, it will hasten recovery.

*Write for samples and literature*

**Fellows Medical Manufacturing Co., Inc.**  
26 Christopher Street      . . . . . New York City, U. S. A.

# CLINICAL MEDICINE

Dependable Therapeutic Fact for Daily Use

Vol 31, No. 12

December, 1924

## Salutation

**I**N assuming the exceedingly responsible duties of Managing Editor of "Clinical Medicine," I wish to extend to every reader my fraternal greetings.

My one great purpose, above all others, is to maintain the high standards set by my predecessor, and to make this journal the most helpful one, for the average practitioner, in its field.

Progress is not made by enormous leaps but by taking one step at a time.

No man, in the course of even a long and busy professional lifetime, can have all professional experience.

The lower animals can learn lessons from their experiences, but only man can learn by precept.

The corollary of the three statements just above is that, to make this journal what we all desire it should be, we must all contribute material from our own experiences, which can be made available for the instruction of all. Your one case, by itself, may be of little value for scientific purposes; but, if we can collect scores or hundreds of such cases, the value will be immense.

I shall need your help in accomplishing the purposes of this journal and I hope I shall be able to be helpful to you.

Give me your earnest cooperation, and permit me to give you mine, for I want not only to make "Clinical Medicine" enormously helpful to every reader but to make this office a clearing house of service to the profession.

GEO. B. LAKE.

## HEART DISEASE

With the possible exception of cancer and tuberculosis, there is probably no disease—or, really, class of diseases—the recognition of which causes such consternation to the patient as he experiences when he is told that he has “heart disease.”

To the lay mind, any sudden death, not otherwise explained, is the result of “heart failure,” so that it is not at all surprising to find patients exceedingly apprehensive when told that this very important organ has strayed from the path of normality.

Again, “heart disease” is one of the diagnoses which the layman, especially among the less enlightened classes, is most prone to make for himself, upon the appearance of any degree or variety of pain in the left chest—being exceeded in frequency, perhaps, only by the diagnosis of “kidney disease” whenever one has a pain in the back or frequent urination—and these home-made diagnoses not infrequently cause their unhappy victims a great deal of worry, sometimes amounting to mental anguish.

With these facts in mind, it frequently becomes necessary for the physician to be able to make a diagnosis of a *normal heart*, and thus relieve his patient of an unnecessary and devitalizing burden of distress, to which end the very valuable article by Dr. John Parkinson, of London, in the September issue of the *Canadian Medical Association Journal*, should contribute materially.

Doctor Parkinson points out that the warning signals of grave cardiac disorders are rarely associated directly with the anatomical location of the heart (except, of course, in the case of angina pectoris), but that the patient applies for relief of a progressively increasing breathlessness on exertion; unusual fatigue after moderate work; or swelling of the ankles, which may be noticed only at night.

During the war there was an excessive diagnosing of cardiac abnormality, as a result of which many perfectly capable young men are now leading the lives of chronic invalids because of the profound psychic effect made upon them by such a diagnosis.

In considering the etiology of possible cardiac damage, the doctor is inclined to rule out such popular lay ideas as “nervous strain,” “physical strain,” tobacco, etc., from the picture, and feels sure that if we can rule out rheumatism, chorea and syphilis from the patient's history, and in the absence of congeni-

tal malformations and the changes due to age or severe extra-cardiac diseases, the presumption is that the heart is normal.

The textbooks on physical diagnosis attempt to describe the sounds made by a normal heart, but these can be appreciated only by listening to many, many normal hearts and thus training the ear to recognize and interpret the sounds.

Irregularities in heart action, particularly extra systoles, will be found rather frequently, which, in themselves, have no significance in the absence of other definite evidence of cardiac abnormality; even the presence of an actual murmur, without other signs, is rarely, in itself, sufficient to warrant a diagnosis of “heart disease.”

Supposing, however, that you have eliminated all the many and various conditions which suggest or simulate true cardiac impairment, and have satisfied yourself that the patient actually has a valve which is leaking or stenotic, must you tell him the whole news, and thereby, perhaps, condemn him to spend the rest of his life as a semi-invalid? The answer to this question depends very largely on the personal equation of the patient and of the physician. Some patients have sufficient intelligence and judgment not to lose their grip even under very adverse conditions; and some physicians can read a man his death warrant in a way that robs it of many of its terrors. Decide each case on its merits.

Two cases which came under the observation of the writer may be of interest in this connection. One was that of an Army officer of long service and of great value to the Government, who had, for many years, a distinct and definite mitral regurgitation, in spite of which he performed very strenuous duties without any inconvenience whatever. The other was a candidate for one of the R. O. T. C. Camps, who, upon examination at camp, was found to have very loud aortic and mitral regurgitant murmurs. Enquiry elicited the fact that he was a member of a railway wrecking crew, in which position a few days of the most violent exertion imaginable frequently followed prolonged periods of inactivity, and that he had just been working at a bad wreck. He was tentatively admitted to the camp, and, after a month of regular living, with systematic, graduated and supervised exercise, his aortic murmur had disappeared and the mitral murmur could scarcely be heard. He had no symptoms of cardiac failure or embarrassment.

It is exceedingly important that every heart

case be given a most searching physical examination, and that no cardiac lesion should be overlooked, but it is well to remember that it is often as important to make a diagnosis of a normal heart as it is to find a lesion; and, in cases of this character, the prognosis should always receive the most thoughtful consideration, in order that we may do our patients no harm.

---

Men must decide on what they will not do, and then they are able to act with vigor in what they ought to do.—Mencius.

---

### INTESTINAL STASIS

---

In one of his numerous lectures dealing with the subject of intestinal stasis (*Brit. Med. Jour.*, June 21, 1924, p. 1106) Sir Arbuthnot Lane expressed the view that virtually all chronic diseases are merely symptoms or manifestations of intestinal stasis. The progressive mechanical obstruction which characterizes stasis leads to infection of the mucous lining of the colon and appendix; to distention of the duodenum and consequent ulceration; to spasm of the pylorus, pyloric gastric ulcer and carcinoma; to spasm of the lower end of the esophagus, ulceration about the cardia, and carcinoma of the lower end of the esophagus and the cardiac portion of the stomach. He expressed the opinion that ulceration and cancer may occur at the several seats of obstruction of the large bowel, or "kinks", as he designates them.

In addition to these mechanical results, the effects of intestinal autointoxication are, he considers, of far-reaching importance, since fouling of the blood supply necessarily results, so that every tissue in the body must suffer and degenerate. The thyroid gland, at first enlarging in an attempt to stimulate the several processes over which it has control, usually succumbs under the influence of the poison, degenerates and wastes, or becomes affected by cysts and other anomalous formations. The adrenal gland also, he holds, undergoes somewhat similar degenerative changes, indicated by a staining of the skin due to imperfect nutrition of this organ, which produces a striking disfigurement of the person affected, especially in those with dark hair.

Sir Arbuthnot Lane finds reason to believe that the sexual apparatus of the female is conspicuously affected, on account of the relatively short active life of these organs. All the troubles of the breast, uterus, and ovaries are, in his opinion, consequent upon this de-

fective nutrition. The kidneys also suffer severely, since upon them falls the function of eliminating the toxins and organisms, leading to the development of Bright's disease in its various forms.

The most distressing results, however, of the poisoning which follows intestinal stasis are, it is said, those to be observed in the cerebrospinal nervous system. Among these, mention is made of various forms of neuritis and of mental depression of such intensity as to lead at times to suicide. Epilepsy, the author considers, is practically always the result of autointoxication, and no cases react more satisfactorily to operation, especially in early life. A considerable proportion of the cases of mania are also considered to be undoubtedly due to stasis.

---

Railway traveling is not traveling at all; it is merely being sent to a place, and very little different from becoming a parcel.—Ruskin.

---

### FAIR BARGAINS

---

President Coolidge recently told a convention of real-estate men, in Washington, that a deal in which one side gets the best of it is not good business. And, he was right. A bargain, to be fair, must be a fifty-fifty proposition or a matter of six for one party and half a dozen for the other. If the proportion is disturbed, if one of the contracting parties receives less benefit than the other, the bargain is not a fair one.

In olden times, before the days of money or where money was scarce, trading used to be carried on by barter. A bear skin, for instance, might be offered in exchange for food supplies or for clothing. The quantity of the supplies offered and accepted in exchange for the bear skin was, of course, subject to the consent of both contracting parties. As long as both were satisfied and both believed themselves to have received the worth of their barter, the deal was fair.

When bargaining meant trading, or "swapping" of commodities, the respective requirements of the two parties to the trade were satisfied by the simple expedient of mutual evaluation of the goods offered, both agreeing that the objects of barter had equal value. Or the means of exchange may have taken the form of service, of work in return for a horse, a cow, a quantity of grain, of leather or what not. In any case there was agreement that

value was rendered and accepted for value received.

That is what a bargain should be. In an unfair bargain the one who has paid too much for his whistle will always feel himself defrauded; we will resent it and bear a grudge against the man who has overreached him. In a fair bargain, each benefits equally.

A bargain, then, is a transaction between two persons in which each participant gives up something that he has to spare in return for something that he requires or wants. The purchase of a commodity in a store or on the street is a bargain; whether the object be a newspaper or a pair of shoe laces, a piano or a house and lot, title in the commodity in question passes from the possessor to the buyer in return for a sum of money, or in return for something else of adequate value, mutually agreed upon.

The use of money as a means of purchase is merely symbolical. It was adopted for the sake of convenience, the piece of money being a token which the seller accepted in exchange for his property, either because the buyer did not have anything suitable to offer in exchange for his purchase or because the seller did not wish to buy anything in return at that particular time. The money is accepted because it will enable the possessor to purchase for his needs at some future time, when occasion may arise.

It may happen that a bargain for money is arranged; that is to say, money is borrowed by one party, who wants it to satisfy his needs, from the other party who can spare it and who makes the lending of money a business. It is but natural that the return of the borrowed money, at the agreed time, will include an additional sum in payment for the service, the accommodation. In other words, the money is the commodity and the price (interest) agreed upon is the compensation. From time immemorial the needs of those buying money have been made use of unfairly by those who possessed it; they drove sharp bargains by charging excessively high prices for the accommodation. In other words, they demanded usury. The insistence on being paid in full, the borrowed money plus the large interest, has come to be designated as "demanding one's pound of flesh," since Shylock, the arch-usurer, had the promise of his debtor that he would part with a pound of his flesh if he were to fail to pay back the borrowed principal and usurious interest at the proper time.

Some people there are who pride them-

selves upon their habit of sticking to their bargains. They like to say that they will have their pound of flesh; they insist on what they conceive to be their rights. Still if they are charged with demanding their pound of flesh, they may be very indignant and may take the charge as an insulting accusation of usury, of dishonesty. Unfortunately, that is what it usually amounts to. People who make a virtue of demanding their pound of flesh often have failed to give value in return for what they demand. They forget that Shylock gave money to Antonio, even though the sum was absurdly small compared with that which he attempted to collect.

There are many Shylocks to be met in daily life. The chap who declares that the world owes him a living usually tries to collect usurious interest on a fictitious claim, for, he never contributed anything to the world's benefit. The man who borrows money from his friends without any intention of ever paying it back is worse than a Shylock, he is a thief. The man who looks upon his wife and children merely as servants to cater to his whims, without providing for them in proportion to his means; the wife who demands everything from her husband without making adequate return; the son or daughter who, though well able and capable of maintaining themselves, sponge upon their parents; the people who ignore the fact that bargains, contracts, agreements are, or should be fifty-fifty propositions and who want something for nothing because of a mistaken notion that they wish to collect their pound of flesh; all are usurers and cheats—dishonest bargainers.

In civilized countries, the citizens have an implied bargain with their government which establishes and regulates the means for protection, builds highways, maintains sanitary conditions and watches over the interests of the people generally. In return, the share of the latter to the bargain is, to obey the laws and to pay the expenses of the government, in taxes, honestly. Tax dodgers are dishonest as surely as are usurers. So are all who transgress the laws and act against the public welfare.

A patient who consults his physician tacitly enters into a bargain with him. It is understood that the physician is to use his best knowledge and judgment in behalf of his client and devote time and effort in order to restore him to health. The patient's obligation is, that he shall give a truthful account of all circumstances that may aid the physician in establishing a diagnosis and in outlining a

course of treatment. Likewise, the patient tacitly agrees to obey instructions, so as to secure the fullest possible benefit from it. And, finally, he engages to discharge his obligations and to complete his share of the bargain by paying the physician's bill promptly and in full.

Health and life are very precious possessions, for the preservation and restoration of which much is paid cheerfully—so long as the sick are under the wholesome influence of pain or the fear of death. To be sure, after the danger has been forgotten, the feeling of obligation is apt to become less and, then, the consciousness of indebtedness also is dulled. Still, the importance of health is realized so fully that the custom is being developed of engaging a physician's services for the purpose of preserving his client's health. The remuneration is not only in proportion to the efforts expended by the physician but also in proportion to the value of health to the client.

Physicians' fees are based upon things that are held to be intangible, although they are not really so. Instead of "regulating" them blindly in accordance with some haphazard notion of what "would be about right", the fees should be based upon a calculation of the capital invested in the business; that is, the cost of acquiring a medical education, the expenses incurred in outfitting and maintaining an office, the expense of maintaining house and family. In short, a reasonable return, or interest, should be charged as overhead in addition to the charge for actual services rendered. It is only in this manner that the practitioner of medicine can hope to receive a fair return for his share of the bargain into which he enters with the patients who consult him. It is as necessary that the physician receive his due as it is that the patient be accorded all necessary attention and that he be treated according to the best available knowledge and by the most approved methods.

A bargain to be fair, must benefit both parties equally; otherwise, it is not an honest bargain, nor is it good business.

#### RENEW YOUR SUBSCRIPTION

With this issue of *CLINICAL MEDICINE*, another volume has been completed and another year has been added to the life of the Journal. We are another year older and, we trust, a year wiser. Are we? Let our actions show.

At any rate, what we want to impress upon you is, that this is a good time for the re-

newal of your subscription to *CLINICAL MEDICINE*. By subscribing from year to year, or for three years at one time, you are sure to receive the complete volumes, which is quite important if, as you should, you preserve the files of the Journal. The bound volumes of *CLINICAL MEDICINE* constitute valuable records for frequent reference; seeing that they are packed full of useful and practical information.

The clerical work required for making out statements and reminders of subscriptions that have run out is quite considerable. The business office of *CLINICAL MEDICINE* will appreciate it if you will just send in your check for \$3.00 for another year's subscription; or while you are about it, better make that check for \$5.00 which will bring you the Journal for two years.

Don't neglect this, please. The subscription price of *CLINICAL MEDICINE* is very moderate, very much lower than would be needed for the preparation, the printing and mailing of the Journal. Still, a price must be collected, in fairness, and if we collect the best possible information for you in matters medical, it is but right that you should pay your "for value received" promptly. Will you sit right down and make out that check? Thank you. Now, don't forget to mail it in the morning.

---

Experience only can teach men not to prefer what strikes them for the present moment, to what will have much greater weight with them hereafter.—Lord Chesterfield.

#### VOMITING OF PREGNANCY

It has been definitely shown that even normal pregnancy is accompanied by a certain degree of autointoxication. If the organism is successful in reacting to this autointoxication, the pregnancy proceeds normally; however, if the organism is not capable of neutralizing the intoxication, the pregnancy is complicated by various distressing occurrences which may range from simple nausea to obstinate vomiting.

On inquiring into the causes of this auto-intoxication, R. Crousse and F. Leynen (*Annales de l'Institut. Chir. de Bruxelles*, Feb. 15, 1921, p. 10) refer to the probability that this is usually in the ovum itself, together with the fetal layer of the placenta and the young and abundant villi.

In reacting against the harm, the organism calls for the assistance of the endocrine glands which have an antitoxic function, namely, the suprarenal capsules. It has

been shown experimentally that in pregnant dogs and guinea pigs the suprarenal capsules (more especially, the cortical layer) undergo important cellular modifications in response to a hyperfunctioning of the organism. These modifications cause us to believe that the secretory activity of the cortical layer constitutes a means of defense which the organism of the pregnant woman mobilizes in order to neutralize the autointoxication occurring at the beginning of pregnancy.

If this theory is admitted, it is easy to explain the occurrence of the suprarenal syndrome in a pregnant woman affected with suprarenal insufficiency which had at first been compensated; the pregnancy having caused the compensation to break down. Similar accidents will occur in those subjects whose suprarenal capsules were at first healthy and then became fatigued and feeble in the course of pregnancy until finally definite insufficiency was established.

The symptoms of suprarenal insufficiency are:

1.—Circulatory disturbances: the pulse is small and generally unstable; arterial hypotension is the rule. This is the clinical expression of a diminution in the tonic vascular suprarenal secretion. This arterial hypotension is accompanied by what Sergent has described as the "suprarenal white line." At the same time, there exists tachycardia, chilliness, and a tendency to collapse.

2.—Digestive troubles. Anorexia is almost the rule; vomiting is never absent. If the affliction becomes acute, then the vomiting assumes an intractable character and is accompanied by diarrhea and by violent pain.

3.—Nervous troubles. These are the expression of an intoxication of the nervous system. Some of the symptoms are: headache, generalized pain and, especially, asthenia.

4.—General troubles. These consist in a slowing up of the metabolism, in hypothermia and in serious impairment of the general health. There is anemia, loss of weight, which may be slow or rapid, and may progress to cachexia.

The authors describe four case reports of vomiting of pregnancy in young women in their first, second or third pregnancies and in which the administration of suprarenal extract (total) by hypodermic injection, either daily or every other day, brought about prompt amelioration. They concluded that suprarenal hypofunction is responsible for at least a considerable proportion of the cases of vomiting

of pregnancy and that suprarenal medication should always be administered in the expectation that it will be successful in the majority of cases.

## THE ELECTION

The election is over. Some of our readers are elated and some are depressed, but all are, or should be, relieved that it *is over* and all uncertainties are at an end.

Political discussions, along with the eighteenth amendment, are taboo in this journal, as being of too highly controversial a nature to enter into the makeup of a scientific publication. Two or three points, however, are worthy of notice, as being of interest to all of us. The first of these is that this country is too great to be wrecked by any one man or small group of men, so that any person who is a "bear" on the United States will surely go broke. The second is that, in the ultimate analysis, this Republic is governed, not by *all* the people, but *those who vote*.

Few of us are professional politicians, but politics (or the business of government) comes close home to every one of us, as taxes, the cost of living, etc., and it therefore behooves us, as men, as citizens and as members of a great profession, to use our franchise on every possible occasion, and to give the matters which are to be acted upon such a measure of study and thought that our action in the premises may be intelligent and constructive.

The rule of my life is to make business a pleasure, and pleasure my business.—Aaron Burr.

## VITAL STATISTICS

The average length of life of human beings is steadily increasing, as is also the length of the period of active and productive work.

Many reasons are advanced to explain this increase in human life and efficiency, and, in all probability, many causes contribute to the result; but, in any case, no one can deny that one of the chief of these causes is to be found in the remarkable development of the sciences of hygiene and sanitation, which valuable work would have been well-nigh impossible but for the parallel development of the science of dynamic demography, or the collection and study of vital statistics.

It is difficult to overestimate the importance to a community, a state and to the world at

large of a complete, accurate and well-handled mass of vital statistics.

Most of the States in the Union now make the reporting of births, deaths and contagious diseases compulsory, but, to their shame be it said, there are some which have not so far kept pace with the progress of civilization.

To a large extent, this exceedingly valuable and necessary work is in the hands of the physicians of the country. In the States where reporting is required it is the duty, and should be the pleasure of every physician to make his reports accurate and complete and to make them as promptly as possible. To fail in doing these things is to fall short of his duty to his patient, his community, his country, and, in the last analysis, to himself; for, by doing so, he lowers his own professional standards.

In States where laws relating to vital statistics are lacking or deficient there appears one of the opportunities where a doctor can and should take an active and aggressive part in political activities. Importune the members of your State legislature, in season and out of season; write to your governor; bring the matter up in your medical societies and have resolutions passed; get the women interested (it is easy when they realize what it means) in their homes and in their clubs, and enlist their individual and concerted action.

Let every one of us lend the whole weight of his influence to realize the hope that, within five years, every State in the Union may be collecting accurate and complete vital statistics.

---

To endure is the first thing a child ought to learn, and that which he will have most need to know.—

---

### THE FAMILY HISTORY

The importance of a full and accurate anamnesis in studying any patient is too frequently overlooked by many busy physicians in handling their cases. A perfunctory question or two as to whether parents or near relatives have ever had tuberculosis, cancer, "heart-disease" or any chronic malady is often the extent of this part of the examination and the information so obtained is almost always valueless.

There are, however, many important and suggestive points which can be brought out by a carefully taken family history: the degree of consanguinity of the parents, if any, may throw light on some abnormality in the patient, as may, also, the age of the parents at the time of the patient's birth; the diseases,

though they appear insignificant, to which the patients' parents and near relatives have been particularly and frequently subject may give helpful suggestions.

The physical and mental peculiarities appearing with any degree of regularity in the family stock may lead the careful physician to a diagnosis of some endocrine imbalance or abnormality.

A history of "one child sterility" or of repeated abortions may suggest the possibility of an hereditary lues, which, otherwise, might be overlooked.

These are merely a few casual suggestions as to useful diagnostic points which may be brought out by a complete family history. Any physician who reads this can, if he will sit down and consider the subject carefully, recall to mind several cases in which his diagnosis would have been facilitated if he had gone into this matter thoroughly.

Will not every reader of this article devote a few minutes, *now*, to this form of introspection, and let us have the result in the form of a detailed report of some case in which the family history would have given him a needed pointer?

In this way, the isolated experiences of each one can be made available to all.

---

### THE CHRISTMAS SEAL SALE

---

This is the time when the National Tuberculosis Association will be ready to hold its seventeenth annual Christmas Seal Sale—the sale of those little Christmas stamps that are affixed to Christmas letters, to Christmas packages and what not. The money collected through this sale provides the funds for the educational campaign that the National Tuberculosis Association is waging, unremittently, against the "great white plague" which, in years past, has demanded more victims than any other disease, but the deadly power of which has, in recent years, been curtailed quite materially.

The diminution in the tuberculosis death rate, of which we have informed our readers repeatedly, is undoubtedly owing, in part, to the valiant fight which the National Tuberculosis Association is carrying on against it. This fight has resulted in a better understanding, on the part of the public, of the real nature of the danger confronting the people; it has brought about an appreciation of the fact that it is mainly and foremost the babies and the little children who must be guarded

against infection and in whom all signs of an actual infection must be dealt with promptly and energetically. The people are alive to the importance of this work.

Physicians are just as much interested in it as are the people. So, if only for the sake of the good example, they, too, should invest in the Christmas Seals and should decorate their letters with them. Why not affix them to the statements that you are sending out during the month of December? Good idea, I think.

Anyway, please buy your allotment of the stamps and help the good work along.

### THE SPIRIT OF CHRISTMAS

What has happened to Christmas in the last generation or so? We see people looking and acting, and some of them even saying that they consider it a bore or a positive nuisance. The children seem to be the only ones who get any solid and hilarious enjoyment out of this greatest of all holidays, and not even the older children at that.

Things were not always like this. Read the descriptions of Christmas festivities in Dickens and Thackeray and the works of the early Victorian writers generally. The grown-ups had as big and as joyous a frolic, in those days, as the children do now—maybe more so—and Christmas was, in very truth, a high feast day.

What has got into us? Are we too digni-

fied to romp a little? Or too busy to play a little? Or just too selfish to enjoy assisting others to have a good time, even when we have a good time, too?

It may be (we sometimes think it is) that Christmas, like too many other good and beautiful things, has become commercialized, so that many look more closely for the price-mark on a gift than they do for the spirit behind it; some even going so far as to state that they wish their friends would send them checks.

Love has never really gone out of style, though some self-styled cynics pretend to believe that it has, and, if we would try, this Christmas, the experiment of choosing gifts for our friends on the basis of what we know they *really want*, instead of what *we think* they expect us to pay for them, and then wrap them up in several thicknesses of love and *genuine* good wishes, I'm sure we would all be surprised at the harvest of joy and gratitude we should reap.

Let us all forget, for this one day, that we are staid "Olympians", with a standard of dignity to maintain. Let's make an active and personal effort to make one or more people *definitely happier*. Let's make a rousing *celebration* of this oldest and greatest of all festivals.

God bless you, all, and may you have a truly

MERRY CHRISTMAS!



# Leading Articles

## Bronchial Asthma

By ALVIN W. LA FORGE, M.D., L.L.B., Chicago, Illinois

*EDITORIAL COMMENT.*—No physician of any extensive experience has failed to number among his patients one or many asthmatics; and in few classes of cases have the results of the ordinary forms of treatment in use proved more disappointing.

It now appears as though the treatment of bronchial asthma were to be placed on a rational and scientific basis and the readers of CLINICAL MEDICINE are peculiarly fortunate that we have been able to procure for them this very thoughtful and well-considered series of articles by Haseltine and LaForge.

It is recommended that readers review Doctor Haseltine's first article, in the August number of CLINICAL MEDICINE, in connection with the present article, and watch closely for the other articles of the series, which will appear in succeeding numbers.

IN preparing a series of articles on the subject of asthma, Dr. Burton Haseltine and I felt that the opening article (published in CLINICAL MEDICINE, August, 1924), should embody: first, a general survey of the asthma problem; second, a brief outline of our conception of the disease, emphasizing the factors of particular interest to the nose and throat specialist, but leaving the subject of treatment for a future paper.

This article, the second of the series, is patterned after the former one, except that it stresses the factors of particular interest to the internist or diagnostician. It is designed to supplement Dr. Haseltine's article, and, while slight overlapping is inevitable, the two articles combined embody every principle upon which the treatment is founded, the details of it to appear later.

Let it be clearly understood at the outset that, from the first day the asthmatic patient is seen until the day he is finally discharged, he is continuously under the joint care of the internist or diagnostician, and the nose and throat specialist. At different times during the course of treatment, the activities of one or the other may predominate, but at no time is the patient wholly and solely under the care of either alone; hence the necessity for presenting the subject from both angles.

### Various Conceptions of Asthma

To understand clearly our conception of asthma, it is perhaps best to outline briefly its difference from the conceptions now in vogue. Until the present time the profession has generally believed that the disease, asthma, was characterized by one symptom,

bronchospasm. In the minds of the profession bronchospasm represented the entire disease, although it recognized that certain other conditions were frequently associated. These other conditions, so frequently found to antedate or coexist with bronchospasm, were as follows: hives; eczema; calcium or other blood deficiencies; protein or non-protein hypersensitiveness; endocrine disturbances; hayfever; hyperesthetic rhinitis; obscure attacks of vomiting and diarrhea; constipation; eosinophilia; and various other symptoms which today we include in the so-called "allergic" syndrome.

Practically all the lines of treatment fashionable today are based upon the assumption that some one or other of these conditions, frequently associated with bronchospasm, represents its basic cause. Various lines of treatment have been suggested, each group of investigators selecting some one of these conditions, and devising a line of treatment, in the hope that, if this associated condition could be removed, bronchospasm would permanently disappear.

### Allergy and Calcium Deficiency Considered

Earlier investigators selected the protein or nonprotein hypersensitiveness as the cause of the bronchospasm. Skin tests were devised, and offending substances discovered, in about one-half of the cases. If possible to withdraw the offending substance, it was done; then an attempt was undertaken to desensitize the patient by injecting increasing doses of a vaccine (food, bacterial or pollen) made from these offending substances, hoping thereby to build up a tolerance for them.

Investigation soon revealed: that only fifty percent of the cases showed positive evidence of hypersensitiveness; that of this fifty percent nearly all were sensitive to one or two particular substances; that practically all were sensitive to more than one substance; that desensitization was possible in only a limited number of cases; that when it was secured, this effect was only temporary; and that there were certain substances to which it was neither possible to desensitize the patient nor withdraw them completely from the diet; and finally, that certain vaccines were highly dangerous to the patient, forty deaths being on record from attempts to desensitize to horse hair and horse serum.

In the fifty percent of cases, which revealed no positive evidence of hypersensitiveness, these investigators were clearly as helpless as before. This treatment soon proved disappointing, for reasons too numerous and too obvious to specify.

Other investigators, noting that calcium deficiency is sometimes associated with bronchial asthma, selected this as a possible cause of the bronchospasm, thereby reviving a formerly discarded theory. The idea that disturbed calcium metabolism is the cause of bronchial asthma can be traced back to the writings of eighteenth century clinicians, who had observed that there existed some vague connection between the two, and recommended the administration of calcium as a possible cure. The difference between the method employed at that time and the calcium treatment in vogue today is that the modern investigators have selected a particular form of calcium and have added to it thyroid or parathyroid extract, and the use of the ultraviolet ray. They frankly admit that this form of treatment is purely temporary in its effect, unless the ultraviolet ray is used in conjunction. The ultraviolet ray, when so used, will, they state, correct the calcium deficiency and permanently restore normal calcium metabolism. The extensive use of ultraviolet ray in asthma, having been in vogue for scarcely three years, any claim to permanent restoration of normal calcium metabolism, appears somewhat premature; nor has any article appeared, to the writer's knowledge, which sets forth the exact details of any scientific work, comprehensive enough, and lasting over a sufficiently long period of time, to warrant such claim.

Investigation has revealed: that calcium deficiency can, and frequently does, exist during the course of any infectious disease; that it possesses no special relationship to bronchial

asthma; that, if bronchial asthma is unassociated with hyperesthetic rhinitis or hay-fever, calcium deficiency is extremely rare; that, if these conditions are associated with bronchial asthma, calcium deficiency is relatively common.

More than one-half of our asthmatics do not suffer from hyperesthetic rhinitis or hay-fever. Of the remaining one-half, about fifty percent reveal calcium deficiency. Only this restricted class of patients could logically expect to benefit from a restoration of normal calcium deficiency. When the treatment was given, only fifty percent of this restricted class noted any benefit, and the length of time that it continued was not stated. Obviously, a treatment which is only applicable to about twenty-five percent of the sufferers is inherently inadequate.

The profession has witnessed, therefore, two recent attempts to solve the asthma problem. The first, based upon the theory that hypersensitiveness was the cause of bronchospasm; the second, and a more recent attempt, based upon the theory that calcium deficiency is the cause of bronchospasm. According to our conception, both of these methods were based upon the faulty assumption that a coexisting symptom was the basic cause of the bronchospasm.

#### Results of Standard Treatment

The outstanding clinical fact remains that, regardless of which line of treatment was used, an occasional cure or improvement was effected. This is true of every line of treatment ever advanced. One textbook on this subject refers to over two hundred separate and distinct treatments for bronchial asthma, and in every one of them a cure, or dramatic improvement, is sometimes noted, regardless of how silly or preposterous the treatment appears in the light of our present knowledge. But, this result only added greater mystery because they could never tell exactly how or why the cure was obtained, nor could they ever be sure of obtaining it in a given case. It was soon recognized that the giving of a standardized line of treatment failed to solve the problem; hence, various other measures were used in conjunction with the standardized treatment. These measures included the removal of infected teeth, tonsils, gall-bladders, pus tubes, nasal polypi or other forms of nasal pathology, etc., but these procedures not having been part of the standardized line of treatment, were considered as mere adjuvant treatment, directed toward secondary or contributory causes, and not deemed

worthy of mention in a clinical report.

It remained for Haseltine to show that, in every case where a dramatic result had been secured and his investigation made, one or both of two things had been done—either the removal of some source of infection or toxemia or the correction of some form of nasal pathology. My own investigations have been identical. These measures were the least common denominator which has characterized every cure investigated, regardless of what standardized line of treatment had been given the credit for obtaining the result.

According to our conception, asthma is a syndrome, or symptom-complex, which in its fully developed state presents bronchospasm as one of its symptoms, although it includes many others. The symptoms, other than bronchospasm, which we include in the asthma syndrome, are those previously noted as co-existing, i. e.: hives; eczema; calcium or other deficiencies; protein or non-protein hypersensitiveness; hayfever; hyperesthetic rhinitis; obscure attacks of vomiting or diarrhea; constipation; eosinophilia; and any of the various other symptoms which result from the so-called "allergic," or "toxic," state. These symptoms may occur singly, or in various combinations, intermittently or continuously, and sooner or later is added the symptom bronchospasm, the patient then being labeled "asthmatic".

The agonizing distress of this last symptom has so hypnotized the profession that it has named the entire syndrome asthma (difficult breathing), which is in reality only one of its many symptoms. It is most unfortunate that the syndrome has been so named. The result has been that the profession has focused its entire attention upon bronchospasm, failing to realize the significance of the many other coexisting symptoms. According to our conception, the most palpable error has been the assumption that these associated conditions, such as protein and non-protein hypersensitiveness, calcium deficiency, endocrine disturbances, were the basic causes which evoked the bronchospasm. It would be just as logical to assume that bronchospasm is due to the eosinophilia which frequently accompanies it as to assume that it is due to the hypersensitiveness which frequently coexists with it. It would also be just as logical to state that pulmonary tuberculosis is due to the calcium deficiency which frequently exists with it, as to say that bronchial asthma is due to the calcium deficiency which is sometimes associated. The acid test which proves the fal-

lacy of these assumptions lies in the fact that all treatments based upon these faulty premises have proven notorious failures. So true is this that the medical profession has become skeptical of all claims to success in the treatment of bronchial asthma.

As stated before, any combination of symptoms enumerated above may exist for a long period of time before bronchospasm appears. This "pre-spastic" stage, or toxic state, is a very real thing. It has long been recognized, and certain phases of it designated by the terms "hypersensitiveness", "allergic state", "anaphylaxis", etc. This toxic condition was the one phase of bronchial asthma which proved the stumbling block of all investigators. The exact relationship between this toxic state and bronchospasm could not be discovered. Its cause, its symptoms, its detection, and its control, were all more or less shrouded in mystery. Its removal was a vain hope. Fortunately, this is now possible.

#### The Author's Conception of Asthma

We are indebted to Doctor Haseltine for his pioneer work begun fifteen years ago which demonstrated that all the symptoms of this toxic stage, that is, all symptoms of the asthma syndrome, other than bronchospasm, were due to infection. He conclusively proved that this "pre-spastic" stage of bronchial asthma is a definitely recognizable clinical entity, capable of quantitative and qualitative determination, and is entirely due to three factors—infection, disturbed metabolism, and faulty elimination. Hypersensitiveness, the allergic state, and calcium deficiency are only a part of it.

While the patient is in this "pre-spastic" stage, he may develop various clinical expressions of his infection other than symptoms enumerated as belonging to the asthma syndrome. For example, he may develop rheumatism, neuritis, sciatica, etc., or, he may present localized symptoms due to infection, such as, appendicitis, acute gall-bladder infection, tonsillitis, tooth abscess, etc.; but, he will never develop bronchospasm unless ethmoid irritation is present to serve as a trigger to "fire off" the spasm. We consider it axiomatic that, exclusive of trauma, "no ethmoid pathology, no bronchospasm". We are again indebted to Doctor Haseltine for having shown that the only area in the nose capable of producing broncho-spasm is the ethmoid area. This can be quickly demonstrated by irritating the ethmoid of a highly toxic asthmatic, with a pledget of cotton. A bronchospasm of low grade severity, and sometimes of extremely marked severity, can be

produced within a few seconds, disappearing almost as quickly if the same area then be cocaineized. This reflex is as definite as the knee jerk of the patellar reflex. The nerve connections which produce it were given in the original article (*CLINICAL MEDICINE*, August 1924) and can be verified in any textbook on Nervous Anatomy.

It is the ability to recognize these symptoms of the "pre-spastic" stage of bronchial asthma, in patients with increasing ethmoid pathology, that has enabled us to predict, with striking precision, the ultimate appearance of bronchospasm. The shortest period of time required for verification was four months. A man, forty years old, who had never suffered from bronchospasm, and came from a non-asthmatic family, was advised that he was a probable candidate for this condition. Patient refused treatment directed towards its prevention. Four months later he returned with a continuous bronchospasm, which lasted ten days, and terminated in death—the only death we have ever seen directly attributable to bronchospasm. The longest period of time that has elapsed between our warning and the ultimate appearance of bronchospasm has been four years, no preventive treatment being given during this interval.

#### Stages of the Asthma Syndrome

With this conception of the asthma syndrome, it can be divided into a "pre-spastic" and a "spastic" stage, depending on the presence of the bronchospasm, and the patient fluctuates between these two stages according to the pathological activity of its now known causes. In some cases the transition from the pre-spastic to the spastic stage is very brief, a matter of days. In other cases, many years will elapse before bronchospasm ultimately appears. Once the spastic stage of bronchospasm has appeared, the fluctuation from one stage to the other begins.

This pre-spastic stage is a chemical affair, a background of infection and toxemia, which is broader than, but includes, the allergic state, and is capable of producing a variety of symptoms, but incapable, in and by itself, of producing bronchospasm. The spastic stage appears when you add to this chemical or toxic background a mechanical factor of ethmoid irritation. The many possibilities of increasing or decreasing the pathological activities of the sources of infection which produce the first factor, and the equally great number of possibilities of increasing or decreasing the amount of ethmoid irritation, and the interplay of these factors producing such ka-

leidoscopic fluctuations from the pre-spastic to the spastic stage furnishes the explanation for much that was considered erratic and mysterious in bronchial asthma.

The mechanical factor of ethmoid irritation is also capable of producing symptoms other than bronchospasm. If the nasal pathology consists of chronic ethmoid infection, plus pressure and irritation of the ethmoid area, the infection present will contribute its share toward the chemical background of toxemia, but, if the infection is quantitatively slight, and the ethmoid irritation, such as can come from severe deformity, is the dominant factor, certain pressure symptoms may be present.

#### Influence of Heredity

Much has been written regarding the influence of heredity as a causative factor in asthma. Here, too, there exists a mistaken attitude of blind groping toward some hidden mystery. It is true that heredity is a marked factor and the tendency of some families to be asthmatic is notorious. But it is silly to postulate some mysterious quality or occult deficiency that is, in some unknown way, transmitted from parent to offspring. The clinical fact is wholly explainable by anatomical and physiological commonplaces. We feel no superstitious wonder that a father, with red hair, or freckles, or a Roman nose, transmits these outward peculiarities in his children.

Physical peculiarities of nasal structure beneath the surface are likewise transmitted. Heredity consists in a transmission of faulty anatomical structure such as prevents free drainage and ventilation and predisposes to chronic head infections with its resulting chronic catarrh, adenoids, ethmoid pathology and frequently asthma.

Given two parents, the father being asthmatic, and revealing a family history of asthma on his side, the mother being non-asthmatic and showing no family history of asthma, the asthmatic children from these parents usually reveal nasal conformation noticeably similar to the asthmatic father, but the non-asthmatic children usually reveal nasal conformation similar to that of the non-asthmatic mother.

Given two children of these parents, one having inherited the asthmatic father's structurally defective nose, the other having inherited the mother's nose and both children living in the same environment and exposed to the same degree of head infection, the child inheriting the father's nose, whose ana-

tomical conditions prevent free drainage, becomes the candidate for asthma, whereas the other child, having inherited the mother's nose, may suffer from similar head infections, but will probably never develop asthma. This is all there is to the mysterious factor of heredity.

The tremendous importance of this understanding as to the mechanism of heredity is, that we no longer stand helpless in the presence of some mysterious factor that is beyond our reach. We are dealing, in this hereditary factor, with anatomical and physiological elements, which are get-at-able, correctible and controllable, and by intelligent care we can almost completely offset what we speak of as "bad heredity." When we meet the New England parent with the typical pinched nose and flat chest, who has his typical chronic colds and bronchial cough with asthma, we can tell him that his child is not predestined to a lifetime of similar invalidism. Intelligent care in early life will protect it from this fate.

It should be clearly understood that this conception of the disease, asthma, is not presented with any claim of completeness or finality. Increasing experience may necessitate certain modifications. It merely presents the basis upon which we have approached the asthma problem in a new way. Whether or not the conception be erroneous is of minor importance in view of the positive and long-standing results it has enabled us to obtain. The conception is of value in many ways. It enables us to determine how much we can do in any given case, and how to do it. It also enables us to determine what we cannot do. Another advantage of tremendous importance lies in the fact that with this condition every procedure utilized in treatment would be of benefit to the patient, whether or not he suffers from bronchospasm. (Contrast this with the treatments for asthma in vogue today which are based largely upon measures, as far as the patient's general condition is concerned, usually utterly useless and sometimes extremely harmful.)

#### **Basis Used in Reporting Results**

In reporting the results we have obtained, a few explanatory remarks are necessary. Practically all reports of results of treatment use the classification cured, improved, or unimproved. This classification is extremely unsatisfactory. Bronchial asthma is essentially a disease of seasonal aggravations and improvements; temporary remissions and temporary "cures" and under this classifica-

tion, a patient reported as cured at a given time may be in the improved class at a subsequent time and in the unimproved class at a still later time. Also a patient reported as unimproved at one time may later be reported in the improved group, and later still in the cured group, depending upon his condition at the particular time his progress is checked. Such method of reporting results does not enable one to trace continuously the progress of any given case. Any individual patient or number of patients may be shifted from one group to the other without altering the percentages in any group, so that a report can honestly state that fifty percent of the cases were found in the cured group for three years, while not a single case need have remained in this group during this entire time.

Such confusion is unnecessary if results are reported entirely on the basis of two factors, namely, a time factor, which we arbitrarily place at one year, and a clinical factor, complete freedom from broncho-spasm. It is upon this basis that we report one hundred and ten unselected cases of asthma, which have remained continuously free from bronchospasm for a minimum period of one year after treatment was discontinued. One of these cases has remained free for nineteen years, several of them for over ten years, increasing numbers for seven, six and five years, and the remainder at least one year since active treatment was discontinued. Importance of the statement "since active treatment was discontinued" cannot possibly be over-emphasized, as it shows that, when all of the indicated measures are completed, the active treatment comes to an end, it being unnecessary to subject the patient to a lifetime of medication or experimentation. We frequently hear from former patients, who have had no treatment nor observation for several or more years, and have remained entirely free from bronchospasm during this time. This, however, is contrary to instructions, as they have all been advised to report periodically for observation only.

Bronchospasm has never reappeared in any case where it was possible to carry out fully the indicated treatment. The converse is equally true. Where only half of the indicated measures were carried out, results in similar proportion were secured; but, when these cases subsequently completed their treatment, complete freedom from bronchospasm was obtained. This accuracy of prognosis in a feature of tremendous value in cases of this character.

### The Problem Now an Economic One

The problem of bronchial asthma has been changed from a clinical problem to an economic one; by this we mean that bronchial asthma is no longer a clinical mystery and there need be little doubt in any given case as to what measures should be used and the extent to which bronchospasm will be relieved. But the detailed arrangements by which such results can be obtained in a given patient often present insuperable difficulties. There must first be made available a working combination of diagnostic medical and surgical skill that no one man, however capable, can provide, nor can any group of men without some special training in this particular work. In every community, where this line of work is undertaken, teams must be formed and these teams must be trained individually and collectively. This being done, the indi-

vidual patient must be able to devote both time and money sufficient to avail himself of all the consecutive measures demanded in his case. This obviously reduces the problem to an economic one, and one that, for large numbers of patients, is most difficult of solution. Unfortunately, this difficulty cannot be met by any form of public charity as now conducted. The treatment necessary for the cure of bronchial asthma is not such as can be provided by routine measures. The very essence of the treatment is individualization, which is obviously impossible in charitable institutions as ordinarily conducted.

The treatment of bronchial asthma will be the subject of future presentation, one paper from the internist's or diagnostician's point of view, and another by Haseltine, covering all the rhinological phases.

112 S. Michigan Ave.

## Arsphenamine-Resistant and Wassermann-Fast Cases of Syphilis

By GEORGE W. RAIZISS, Ph. D., Philadelphia, Pennsylvania

Professor of Chemotherapy, Graduate School of Medicine, University of Pennsylvania

THE most important problem at the present stage of development in syphilotherapy is that of arsphenamine-resistant syphilis. The excitement of the first few years, following the introduction of arsphenamine, now being over—years which witnessed unbounded enthusiasm as well as keen disappointment and severe censure—we have come to a definite realization that arsphenamine and its derivative neosyphenamine are the most potent remedies in the treatment of syphilis, and that all other drugs are mere auxiliary agents. Modern syphilotherapy has its foundation in these two drugs and, as yet, there is nothing in sight to replace them. To be sure, they have their limitations and cannot always be employed indiscriminately in the hope of attaining complete cure. Nevertheless, these remedies are capable of solving a great many problems involved in the treatment of syphilis, except those of Wassermann-fast cases and certain types of neurosyphilis where the damage caused to the system by the infection is beyond repair.

In considering the problem of arsphenamine-resistant syphilis, we are naturally led to ask: what is the cause of this phenomenon? Is the specific and acquired drug resistance (arsphenamine-fastness) of the spirochete responsible for it? Is the drug at fault? Are

there different types of spirochetes, some more virulent than others? Is the immunologic assistance of the patient lacking?

The question of drug-fastness of *treponema pallida* has been discussed by many syphilologists. The idea that this organism may become resistant to arsphenamine and mercury first suggested itself when P. Ehrlich, at the meeting of the Berlin Medical Association, February 13, 1906, showed that he had succeeded in producing trypanosomes resistant to drugs.

The majority of investigators are inclined to deny the possibility of acquired drug-resistance in the spirochete, particularly because such resistant strains could not be cultivated experimentally. Ehrlich<sup>1</sup> demonstrated acquired drug-fastness on trypanosomes (organisms related to the spirochete of syphilis) by treating mice infected with trypanosomiasis with insufficient doses of an effective drug (arsacetin, trypanosan and others). By gradually increasing the dosage, he produced a strain which could not be influenced even by the maximum tolerated dose of the drug. This acquired resistance was very stable. It remained unchanged for three years after 400 passages through normal animals.

While Ehrlich's experiments on the cultivation of arsphenamine-fast trypanosomes are

of indisputable value, attempts of other investigators to produce arsphenamine-resistant strains of *treponema pallida* have failed. Akatsu and Noguchi<sup>1</sup> succeeded in producing an arsenic, mercury, and iodide-resistant strain of *treponema pallidum* by exposing cultures of the organism to gradually increased concentrations of the drugs. This acquired resistance, however, was lost after several transfers through non-medicated media. Kolle<sup>2</sup> stated that he was unable to produce an arsphenamine-fast strain of spirochetes although he had kept many of the organisms under the influence of arsphenamine for a long time. Klauder<sup>3</sup> succeeded in increasing the resistance of *treponema pallida* to a maximum of 68 percent—the therapeutic active dose of 0.006 Gm. of arsphenamine in the control animals having been raised to a maximum of 0.01 Gm. in the animals studied. The increased resistance was striking within these limits, beyond which no further increase developed.

The question of the existence of arsphenamine-fast strains of *treponema pallida* should by no means be considered exhausted. Klauder's statement, that partial resistance was observed in his experiments, leaves the discussion open. Besides, the work of Plaut and Mulzer<sup>4</sup> points to the possibility of cultivating a special neurotropic type of spirochete by administering small, therapeutically inadequate doses of arsphenamine to rabbits infected with syphilis. Such a strain, if its existence proves a fact, should be of greater virulence and greater drug resistance than ordinary spirochetes. This kind of experimental work is very difficult and still in its beginnings. It should be remembered that the criterion of cure in rabbit syphilis is as yet unestablished, and experimental results are difficult of definite interpretation. Further experimentation and more delicate methods of measuring the therapeutic activity of drugs in rabbit syphilis may bring forth more evidence as to the drug-resistance of *treponema pallida*. For the present, Ehrlich's dictum, to treat syphilis with large doses of arsphenamine and its most efficient derivatives in order to avoid drug fastness, should be followed wherever possible. The principle of *therapia magna sterilisans* is here to stay, unless sufficient evidence is brought against it. Indeed, if this principle were followed out, we might see less arsphenamine-resistant cases.

The second important phase of this discussion is the comparative therapeutic efficiency of arsphenamine and its derivatives. Some

syphilologists claim that arsphenamine is more potent than neoarsphenamine or sulpharsphenamine and is therefore less likely to produce drug resistance. They also state that the curative potency varies with different brands and different lots of the same brand of neoarsphenamine and that therapeutically weaker preparations cause development of drug resistance. It is true that arsphenamine is the most powerful of organic arsenicals. But it is not as safe and free from reactions as neoarsphenamine. Besides, the latter may be so prepared by refined methods of manufacture that it will practically approach arsphenamine in its purity and potency. It is also true that some brands are weaker than others and that such brands are apt to contribute to the possibility of acquired drug resistance because inefficient remedies are just as contributory to the development of resistant spirochetes as treatment with small doses. The author had occasion to examine the trypanocidal properties of various brands of neoarsphenamine and found, in some instances, surprisingly poor results. It is desirable, therefore, that products of the highest quality should be used in order to avoid the possibility of drug resistance.

As to the existence of some strains of spirochetes more virulent than others, there arose an interesting discussion at the Congress of German Syphilologists in 1923.<sup>5</sup> Jadassohn stated that when spirochetes become resistant in one patient and are then transmitted to another, they may cause an arsphenamine-fast infection. Kolle suggested that arsphenamine-resistance may be the result of biological changes within the human body—changes produced by the syphilitic infection. Jadassohn corroborated this view, calling attention to the changes which characterize the late stage of syphilis. He claims that in tertiary syphilis, the small content of spirochetes, on the one hand, and the virulent increase of the products of the disease, on the other, can be explained only in terms of specific changes in the body. Such changes are characteristic of the late stage of syphilis. They may also occur in the early stages, as a result of which the syphilitically infected body may no longer be capable of reworking the drug so as to afford its maximum power. The spirochetes may produce an increased amount of toxins which wield a destructive effect upon the body. This possibility of biologic change, and the increased virulence of the spirochete (the latter relating particularly to the specific destructive affinity for nerve cells) have been emphasized by Plaut and Mulzer and their

collaborators. They claim to have cultivated a neurotropic strain which, in experimental rabbit syphilis, behaved differently from the ordinary dermatropic type of spirochete. A considerable amount of work supporting this view has also been done by French investigators.

As early as 1919 Levaditi and Marie<sup>7</sup> tried to prove that parasyphilis (tabes and paralysis) is due to a strain of spirochetes different from those which produce the cutaneous, mucous and visceral forms of lues. In a subsequent article published in 1923, the authors analyzed still further the dermatropic and neurotropic types of treponema. They came to the conclusion that there are several strains of spirochetes even of the dermatropic variety, depending on the affinity each has for different tissues of the body. These spirochetes differ in virulence and in their biological and morphological properties though the latter have not as yet been fully identified and described. The authors brought forth data to justify their assumption that *treponema pallida* may appear in the special form of a neurotropic strain. In support of this view they submit the fact that (a) Bayle's disease and tabes represent distinct clinical, anatomic and pathological phases not to be found in other forms of lues; (b) that these forms of parasyphilis are graver in their manifestations than primary and secondary syphilis; (c) that general paralysis and tabes are rare among inhabitants of tropical countries where ordinary syphilis appears in grave form; (d) that neurosyphilis may be transmitted from person to person; (e) that treatment of neurosyphilis is ineffective; (f) that transmitting the neurotropic treponema to experimental animals is difficult; (g) that specific characteristics of infection are produced by this strain in animals, if such infection ever takes place; and that (h) the biological properties of this variety differ from those of the dermatropic.

The position of these authors with regard to a specific neurotropic type is further strengthened by the morphologic findings in the studies of Bravetta and Bertolucci—findings distinctly different for the neurotropic type than for the dermatropic.

The problem of decreased immunologic assistance of the patient resulting in the increased resistance of the disease to the favorable influence of arsphenamine was also discussed at the same Congress by Jadassohn who stressed the possibility that some patients may not be in a position to change the drug to such an extent as to make it therapeutically

more active. The cooperation of the body is absolutely essential under all circumstances. Schamberg, Kolmer and Raiziss<sup>8</sup> emphasized that arsphenamine and its derivatives are capable of being oxidized to the corresponding arsenoxides which, though more toxic, are also more therapeutic in experimental trypanosomiasis. Voegtlin and Smith<sup>9</sup>, in a study of this question, stated that the therapeutic effect of arsphenamine and other arseno compounds is based on the transformation of the drug into the arsenoxide form, which is apt to take place in the body as a result of the presence of oxygen. It is possible, therefore, that some patients do not possess sufficient oxidizing power to change arsphenamine into a more therapeutically active substance. If oxidation is not the most important factor, then there are other chemical changes possible. Arsphenamine and its derivatives are changeable, and it is quite likely that the products of the change are the active substances and not the drugs proper.

A considerable number of syphilologists believe that the effect of organic arsenical compounds lies, not in the destruction of the spirochetes but, in the stimulation of the body to produce immune bodies which bring about the curative effect in the treatment of syphilis. The possibilities of so-called non-specific therapy are coming to the foreground now. That is why Muller<sup>6</sup> claims that the administration of luetin in Wassermann-fast cases will yield the desired effect. For the same purpose of body stimulation Galewsky<sup>10</sup> recommends the administration of bismuth. Galewsky and Pinkus<sup>11</sup> are of the opinion that there are no such things as absolute arsphenamine-fast cases. According to them, arsphenamine resistance is of a temporary and relative nature. Some authors claim that arsphenamine-resistance can be broken by an increased intensity of treatment. Others suggest intravenous injections of mercury as a proper remedy (Conrad & McCann<sup>12</sup>). Of late, bismuth has come to be considered of particular importance. It is claimed that the joint administration of arsphenamine or its derivatives and bismuth will give rise to fewer cases of resistance, and that arsphenamine-resistant patients will do much better on bismuth generally. Excellent results have been obtained in cases where the arsphenamines have failed. This is particularly true of the tertiary stage<sup>13</sup>.

The question of arsphenamine-resistance is of great importance in modern syphilotherapy, and from theoretical and practical points is an intensely interesting problem.

## REFERENCES

1. Ehrlich: Latest Research on Trypanosomes, *Arch. f. Schiffs u. Tropenhygiene*, 1909, v. 13, Beihfte, p. 321 (91).
2. Akatsu and Noguchi: The Drug-Fastness of Spirochetes to Arsenic, Mercurial and Iodide Compounds in Vitro, *J. Exper. Med.* 1917, v. 25, p. 349.
3. Kolle: Congress of German Dermatologists 1923, *Arch. f. Derm. u. Syph.*, 1924, v. 145, p. 263.
4. Klauder: The Exp. Production of an Arsenic Resistant Strain of Spirocheta Pallida in Rabbits, *Arch. Derm. & Syph.*, 1924, v. 9, p. 446.
5. Plaut and Mulzer: The Influence of Insufficient Arspenamine Treatment in Experimental Rabbit Syphilis, *München. med. Wochenschr.*, 1923, v. 70, p. 623; Abstracted in "Progress in Chemotherapy and the Treatment of Syphilis", 1924, No. 1, p. 4.
6. Congress of German Syphilologists, *Arch. f. Derm. u. Syph.*, 1924, v. 145, p. 263-265.
7. Levaditi and Marie: Plurality of the Syphilitic Virus, *Ann. de l'Inst. Pasteur*, Feb. 1923, p. 189.
8. Schamberg, Kolmer and Raiziss: Experimental and Clinical Studies of the Toxicity of Dioxidiamino-Arsenobenzol Dichlorhydrate, *J. Cut. Dis.*, May, June, 1916.
9. Voegtlin and Smith: Quantitative Studies in Chemotherapy, *J. Pharm. & Exp. Therap.* 1920, v. 15, p. 453.
10. Conrad & McCann: Results in the Treatment of Wassermann-Fast Syphilis by Intravenous Mercury Chloride, *Arch. Derm. & Syph.*, 1922, v. 6, p. 50.
11. Progress in Chemotherapy and the Treatment of Syphilis, 1924, No. 2, p. 30.

## The Parathyroid Glands

By J. H. HUTTON, M. D., Chicago, Illinois

**EDITORIAL COMMENT.**—As will be seen by the bibliography at the end of this article, the literature on the parathyroids is extensive, and the readers of *CLINICAL MEDICINE* are unusually fortunate in the fact that we have been able to secure for them this concise and extremely valuable résumé of a very interesting and vital subject.—ED.

**T**HERE is little doubt that the thyroid and parathyroids are functionally and anatomically independent and that the parathyroids are not embryonic thyroid tissue.

### Theories Regarding Their Functions

Hammitt believes they are glands of internal secretion with a function *sui generis*, and that the symptoms following their extirpation are due solely to the loss of this secretion. Dragstedt questions whether they have an internal secretion. This point is still a matter of dispute. It has been suggested that their function in some way regulates the calcium metabolism of the body, that they have an antitoxic action, neutralizing toxins that arise from:—

- (a) that phase of muscle metabolism concerned with the maintenance of muscle tone.
- (b) The gastrointestinal tract, as a result of the activity of the proteolytic group of bacteria.

It has been further suggested by some that they have to do with the maintenance of the acid-base equilibrium of the body and that, in their absence, an alkalosis quickly develops. This last theory has fewer experimental facts to support it than have the others.

### Symptoms Following Extirpation

Laboratory animals, fed on ordinary diets before and after parathyroidectomy, quickly develop anorexia, nausea and vomiting, depression, hyperpnea, generalized fibrillations, clonic contractions of the muscles generally; in short, the signs of tetany, from which the animal dies in about seventy-two hours. These signs appear more quickly and in greater severity in carnivora than in herbivora.

Hastings and Murray have shown that, following parathyroidectomy, there is a decrease in the amount of calcium in the serum from a normal figure of about eleven mgs. per 100 Cc. to about five mgs. per 100 Cc. When the serum calcium reached a concentration of about seven mgs., tetany developed. I understand that Boothby has sometimes found this to occur in patients as a result of parathyroid disturbance occurring after a goiter operation. In my own laboratory, we have found this figure a number of times not in association with signs of tetany. There is a slight post-operative hyperglycemia.

### Methods of Preventing or Controlling Parathyroid Tetany

1.—If the animals are fed on a high-carbohydrate, low-protein diet for several days before, and about forty days after the operation, signs of tetany do not develop.

2.—The administration of Ringer's solution intravenously, in the amount of 30 to 50 Cc. per kilo of body weight or the oral administration of calcium lactate in the amount of 1.5 Grams per kilo of body weight, will prevent the appearance of tetany in parathyroidectomized dogs fed on an ordinary or even a heavy meat diet.

After about forty days these measures can be discontinued.

In dogs that have apparently recovered from the operation signs of tetany can be induced quickly by feeding large quantities of fresh meat or small quantities of spoiled meat. These signs appear more quickly if the animal is constipated. In female dogs the appearance of heat may bring on signs of tetany.

As a result of muscular exercise and ex-

citement, recently parathyroidectomized dogs on a low calcium intake may suddenly show seizures identical with the convulsive seizures seen in *grand mal* attacks of idiopathic epilepsy.

### Conclusions

From this experimental evidence, it would seem reasonably certain that the parathyroids have some important function in connection with the calcium metabolism of the body and that they also undoubtedly have an antitoxic function; the toxins they neutralize coming largely from the gastrointestinal tract as a result of the activity of the proteolytic group of bacteria, but also partly from muscle metabolism.

It would seem equally true that, either the body acquires a tolerance for these particular toxins, which is very unlikely, or that some new mechanism is called into play in a sort of compensatory way to take the place of the parathyroid function, the new mechanism neutralizing these toxins and regulating the calcium metabolism.

Whatever theories one may wish to indulge in, the fact remains that, by proper measures, the body can be accustomed to the absence of the parathyroids and life maintained as before parathyroidectomy.

### Clinical Applications

The fact that tetany is more prone to develop or is more severe in pregnant animals inclines some observers to the belief that there is some relation between eclampsia and parathyroid insufficiency. Symptoms of hypoparathyroidism which remain latent in nonpregnant animals tend to develop strongly in pregnancy with a syndrome markedly similar to that of eclampsia, while, in pregnant animals, symptoms closely resembling if not identified with those of eclampsia may be produced by causing a parathyroid insufficiency. These symptoms may be relieved by a meat-free diet. So far as can be ascertained, no work has been done along this line in the treatment of eclampsia, i. e., the intravenous use of Ringer's solution has not been attempted in its treatment. Other measures used in the treatment of parathyroid hypofunction in experimental animals are, of course, impossible in the treatment of eclamptic seizures.

The resemblance between the convulsive seizures in parathyroidectomized dogs after exercise or excitement and the convulsive seizures seen in idiopathic epilepsy led to the belief that large doses of calcium might be

of value in the treatment of idiopathic epilepsy. This hope has been realized in a very small number of cases. The writer's scant experience in this connection has been disappointing in every instance.

During these seizures the signs point to a paresis of the sympathetic nervous system; enophthalmos, pseudoptosis,aretic nictating membrane, bradycardia, conjunctival injection, general vasodilation and a sluggish gastrointestinal tract. This last condition would favor the production of toxic materials and the splanchnic dilatation would permit of such rapid absorption that the liver would be functionally inadequate to neutralize them because of the speed of their delivery.

In the light of this experimental knowledge it would seem reasonable to suppose that the tetany from which women who have been subjected to goster operations suffer at their menstrual periods is due to a parathyroid insufficiency. In such cases it seems quite likely that the parathyroids have been damaged in some way at the time of operation.

### The Work of Grove and Vines

Clinically the work of these investigators is of the greatest interest in connection with the treatment of various ulcerative conditions. Vines has suggested that all toxemias, both acute and chronic, react in some degree on the parathyroids, causing a disturbance of calcium metabolism with a consequent decrease in tissue resistance. Grove and Vines have shown that the calcium in the blood serum is all in the ionized form and amounts to 10.5 Mgs. per 100 Cc. of serum. In certain ulcerative conditions a deviation occurred in the calcium content, some being present in the combined form, with a decrease in the amount of the ionized form. All cases of varicose ulcer showed this condition.

Believing this condition had something to do with maintaining the chronicity of the disease, measures were taken to increase the ionic fraction of the calcium by intravenous injections of ionized calcium salts. This had a definite effect in promoting the beginning of healing, while the oral administration of calcium had no effect. (Luckhardt has shown that the parathyroid tetany in dogs can be controlled by the oral administration of sufficient amounts of calcium salts.) Complete healing did not occur until parathyroid was administered along with the calcium.

Following is a list of conditions which Grove and Vines believe are amenable to parathyroid medication:

## Chronic toxemias:

## Ulcerative:

Varicose,  
Gastric,  
Duodenal,  
Erosion of cervix,  
Gumma.

## Suppurative:

Nasal sinusitis,  
Tonsillitis,  
Pyorrhea,  
Otitis media.

## Nonsuppurative:

Rheumatic group—  
Rheumatoid arthritis,  
Osteo-arthritis, chronic,  
Rheumatism,  
Arteriosclerosis,  
Eczema,  
Chlorosis,  
Sciatica.

## Conditions of uncertain origin—

Menorrhagia,  
Prostatic hypertrophy,  
Urticaria.

All of their cases were believed to have two factors in common: (1) All were due to some chronic toxic state. (2) All had a deficiency of the ionic calcium of the serum. They felt that this deficiency might be due to a combination of toxin and calcium. It was possible in most cases for them to find a primary septic focus. But, in some instances, the administration of parathyroid caused a hidden focus to become apparent by increasing the leucocytic reaction to the infecting organisms.

Part of their results have been confirmed clinically in this country, but most of them have not. Their statements seem a bit dogmatic and one is inclined to question if all the conditions mentioned in their list are amenable to parathyroid and calcium therapy or that the parathyroids are intimately concerned in their production or maintenance. On the other hand, most of the conditions are of obscure origin and their treatment is on a very unsatisfactory basis. For this reason, it would seem good judgment to follow their suggestions, recording accurately the phenomena that accompany such a procedure for the purpose of shedding more light on this question.

Novak and Hollender have shown that practically all cases of hyperesthetic rhinitis and many cases of hay-fever and asthma are accompanied by a low blood-calcium. The coincident use of calcium and thyroid restored

these people to comparative comfort very quickly. The use of calcium alone had very little influence on the condition. They used thyroid instead of parathyroid because, as Hollender says, they regarded parathyroid preparations as being probably unreliable in most cases. They seemed to feel that, on theoretical grounds at least, parathyroid would have been preferable. The calcium was given in the form of lactate or chloride by mouth, intramuscularly or intravenously. By mouth, the lactate was most often used in doses of five grains *t. i. d.* Intravenously, the chloride was used in a five-percent solution, five Cc. being given at first and repeated every day. Later it was given less frequently and the dose increased to ten Cc. of the same solution. They also found that while the improvement in this condition was coincident with the restoration of the blood to normal and that doses as small as five grains of the lactate combined with 1/10 grain of thyroid daily was sufficient to maintain the blood calcium at a normal level, yet, if the medication was entirely stopped, the condition tended to recur more or less quickly. To prevent this and "fix" the calcium, they exposed the patient's body to ultra-violet rays generated by a quartz mercury vapor lamp.

The writer has had a limited experience with some intractable cases of bronchitis that have yielded to the same treatment after all other measures had failed. So far as could be determined, they were not tuberculous. In one case in particular the patient became waterlogged—that is, there was a profuse discharge of thick, white mucus from the nose and the same sort of material was coughed up in large quantities. The maxillary sinuses became filled with the same material. A competent rhinologist, Dr. J. F. Boone, to whom she was referred for examination, said the sinuses had acted more as a reservoir than anything else and that there was no sign of an ordinary sinusitis. The condition had persisted through two winters and into the third before calcium and thyroid therapy was instituted. The relief was little short of marvelous. The calcium was given intravenously; 15 grains of the chloride being given in 10 Cc. of solution. This was given twice a week at first and later reduced to once a week. The patient was entirely relieved after half a dozen treatments. Curiously her basal metabolic rate was normal. But, in spite of this fact, she took two grains of thyroid daily, over a long period of time, with no increase in pulse rate.

To say the least, it would be very "rational empiricism" to use parathyroid and calcium therapy in the conditions enumerated where no other etiological factor can be found or where other measures have not been satisfactory.

There are many difficulties in the way of the pharmaceutical house attempting to market parathyroid substance. It is quite likely that many parathyroid preparations on the market are not parathyroid at all but lymphatic-gland tissue. This statement is not intended to cast any reflection on the honesty or good intentions of any of the houses marketing these preparations. Only one test of the activity of parathyroid preparations has been suggested; Grove suggested that these preparations might be incubated with a known amount of guanidin in solution. If the amount of guanidin reckoned as picrate at the end of the incubation period is found to be less than at the beginning, it may be inferred that the parathyroid preparation is active.

Before using this treatment it would be well to determine the patient's blood calcium. This is not now a difficult undertaking. Many commercial laboratories are equipped to do it for the man who has not the facilities. The blood can be taken exactly, and in the same quantity, as for a Wassermann and can be shipped considerable distances before the determination is made.

Whether we regard the use of calcium and parathyroid as being thoroughly scientific in the treatment of the various conditions mentioned by Grove and Vines or not, it is well to keep it in mind. Certainly it offers something definite where we have previously had nothing or next to nothing to offer except symptomatic treatment. This, at least, attempts to do something for a specific reason and is promising.

## BIBLIOGRAPHY

### The Parathyroid Glands

- Berkeley and Beebe: *J. Med. Research*, 1909, v. 20, p. 149.
- Prescriber (Edinb.), 1922. Vines: v. 16, p. 339.
- Morris: *J. Lab. & Clin. Med.*, 1915, v. 1, p. 26.
- Hurst: *N. Y. Med. J.*, Apr. 5, 1922, v. 115, p. 403.
- Howland & Marriott: *Qly. J. Med.*, 1917, v. 11, p. 289.
- Paton & Findlay: *Q. J. Exper. Physiol.*, 1917, v. 10, p. 203.
- Edmunds: *J. Path. & Bact.*, 1911, v. 16, p. 481.
- Brown, MacLachlan & Simpson: *Am. J. Dis. Child.*, 1920, v. 19, p. 413.
- Thompson & Leighton: *J. Med. Research*, 1908, v. 19, p. 121.
- Erdheim: *Frankfurt Zeit. f. Path.*, 1911, v. 7, p. 238.
- Broderick: *Brit. Dent. J.*, 1920, Oct. 15.
- Massaglai: *Endocrin.*, May 1921, v. 5, p. 309.
- Vassale: *Arch. Ital. de Biol.* 1905, v. 43, p. 177.
- Remond and Menville: *La Trib. med.* 1921, No. 23.
- Knox: *N. Y. Med. J.*, Feb. 17, 1917, v. 105, p. 308.
- Grove & Vines: *B. M. J.*, 1921, July 9, p. 40; Oct. 29, p. 687.
- Freund & Lockwood: *Ann. Med.*, 1920, v. 1, p. 67.
- Mellanby: *Med. Res. Coun. Sp. Reports*, No. 61, 1921.
- Paton & Findlay: *Q. J. Exper. Physiol.*, 1917, v. 10, p. 315.
- Launoy: *L'Appareil Thyro-Thyroidien* (Paris, 1914).
- ### Recent Developments in Parathyroid Therapy
- N. Y. Med. J.*, 1921, cxviii.
- ### Calcium Deficiencies: Their Treatment by Parathyroid
- Grove & Vines: Calcium Deficiencies: Their Treatment by Parathyroid. *B. M. J.*, 1922, v. 1, 791-795.
- Luckhardt & Blumenstock: The Recurrence of Acute Parathyroid Tetany in Completely Parathyroidectomized Animals During the Oestrus Cycle.
- Luckhardt & Rosenbloom: The Control and Cure of Parathyroid Tetany in Normal and Pregnant Animals. *Science*, v. 56, No. 1437, July 14, 1922.
- Brown: Observations on a Case of Postoperative Tetany with Implantation of Human Parathyroids. *Annals of Surgery*, 1922, v. 75, pp. 418-22.
- Haden & Orr: The Relation of the Nonprotein Nitrogen of the Blood to Parathyroid Tetany. *Am. J. Med. Sci.*, v. 167, p. 108.
- Luckhardt & Rosenbloom: Parathyroid Tetany and Convulsive Conditions. *J. A. M. A.*, 1922, v. 79, p. 1148.
- Lahey: Parathyroid Deficiency and Its Treatment. *Boston M. & S. J.*, 1922, v. 187, pp. 170-73.
- Hurst: Report of Case of Parathyroid Insufficiency. *N. Y. Med. J.*, 1922, v. 115, p. 403.
- Koch: Tetany and the Parathyroid Glands. *Med. & Surg. J. (St. Louis)*, 1918-21. Abst. Ends 1918, pp. 66-67.
- Grove: Symptoms Produced by Parathyroid. *B. M. J.*, 1922, v. 1, June 3, p. 904.
- Luckhardt & Goldberg: Preservation of the Life of Completely Parathyroidectomized Dogs. *J. A. M. A.*, 1923, v. 80, p. 79.
- Hastings & Murray: Observations on Parathyroidectomized Dogs. *J. Bio. Chem.* 1921, v. 46, p. 233.
- Scott: A New Theory as to the Causation of Sprue and the Results of Treatment Based Thereon. *China Med. J. (Shanghai)*, 1923, pp. 37-58.
- Klemperer: Parathyroid Hyperplasia and Bone Destruction in Generalized Carcinomatosis. *Surg., Gynec. & Obstet.*, 1923, v. 36, p. 11.
- Underhill & Nellans: The Influence of Thyro-parathyroidectomy Upon Blood-Sugar Content and Alkali Reserve. *J. Biol. Chem.* Oct. 1921, v. 48, p. 557.
- Korenchevsky: Influence of Parathyroidectomy on the Skeleton. (Abst.) *J. A. M. A.* 1922, p. 770.
- Izumi: Internal Secretion of the Pituitary and Parathyroid. *Japan Medical World (Tokio)*, 1922, p. 179.
- Hammett: Effect of Loss of Thyroid and Parathyroid Glands at 100 days age on Growth in Body Length, Body Weight and Tail Length of Male and Female Rats. *Am. J. Physiol.* Jan. 1923, v. 63, No. 2, p. 218.
- Landois: Transplantation of Parathyroids in Treatment of Tetany. *Zentralbl. Chir.* Jan. 24, 1920.
- Kuhl: Parathyroid Grafts in Paralysis Agitans. *Munch. Med. Woch.* 1921, v. 68, p. 1083. *J. A. M. A.* (Abst.) 1921, v. 77, p. 1692.
- Cameron & Carmichael: The Comparative Effects of Parathyroid and Thyroid Feeding on Growth and Organ Hypertrophy in the White Rat. *Am. J. Physiol.* 1922, v. 1, p. 58.
- Hildwig (Stockholm): Studies on the Parathyroid. Two Cases of Combined Enlargement of the Thyroid Gland and Lower Parathyroids. *Endocrinology*, v. 6, p. 474.
- Hammett: The Response of the Submaxillary Glands of the Albino Rat to Thyro-Parathyroidectomy and to Parathyroidectomy. *Am. J. Anatomy*, v. 31, p. 103.
- Dragstedt: The Pathogenesis of Parathyroid Tetany. *J. A. M. A.* Nov. 4, 1922, v. 79, p. 1593.

# Hydrogen Ion Concentration

By J. FAVIL BIEHN, M.D., Chicago, Illinois

THERE are appearing in the literature, at present, numerous references to the hydrogen ion concentration of the various secretions and excretions, and, as this term is a comparatively recent addition to our vocabulary, the exact meaning of it is ill understood by the average physician.

That branch of science which is on the borderline between physics and chemistry and which deals with what are known as subatomic phenomena has recently advanced enormously. The atom has been dissected, and an entirely new field of chemistry and physics opened. Along with these advances have come others of which the average physician has little or no knowledge, owing to the fact that they are to be found described only in the highly technical journals.

An attempt to explain in simple language just what is meant by hydrogen ion concentration in a brief article, presents considerable difficulty; however, I may be able to explain to some extent, at least sufficiently for ordinary purposes, what is meant by this term.

Until recently, it was considered sufficient that chemists were able to determine the amount of acid or alkali in a solution by titration, using an indicator, such as litmus, phenolphthalein, or methylorange. By means of these indicators, we were able to say that a solution was acid, neutral, or alkaline. Now, however, with the newly discovered indicators or by electrometric methods, we are enabled to determine much more than this.

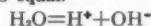
In order to realize what takes place we must refer to the ionic theory. When hydrochloric acid is dissolved in water, only a small amount is present as HCl. It becomes dissociated into ions,  $H^+$  and  $Cl^-$ . Hydrogen ions are atoms of hydrogen which have lost an electron, and so have become positively charged. Chlorine ions have gained an electron and are negatively charged. The acid properties of this solution are due solely to the hydrogen ions contained. Therefore, an acid is any substance that dissociates to give an excess of hydrogen ions. Weak acids dissociate into ions only slightly.

The strength of an acid, or the actual acidity of a solution, depends entirely on the number of hydrogen ions present in a certain volume; therefore, on the hydrogen ion concentration, not on the amount of undissociated acid present.

Bases also dissociate and their properties depend upon the hydroxyl (OH) ions, the strength depending upon the excess of hydroxyl ions over hydrogen ions.

Pure water is itself ionized to a slight extent into H ions and OH ions.

Water, however, is neutral if absolutely pure, as the number of hydrogen ions and hydroxyl ions is equal.



The hydrogen ion concentration can be determined for an alkaline solution, as well as an acid solution, because all aqueous solutions contain some hydrogen ions.

The usual method of expressing the hydrogen ion concentration is to use the symbol pH. Pure water contains about one billion each of H ions and OH ions per liter. It has a hydrogen ion concentration of one ten millionth Grams per liter ( $0.0000001=10^{-7}$ ), or one ten millionth normal  $10^{-7}=pH7$ . As water is neutral, there being an equal number of H and OH ions, pH7, the pH of water, is the point of absolute neutrality. Values below pH7 mean the solution is acid, and values above pH7 mean the solution is alkaline.

There are two methods of determining the hydrogen ion concentration—electrometric and colorimetric. The first is the more accurate, but very complicated and requires expensive apparatus; the second method utilizes indicators. Among these are thymol blue, with a color range from red to yellow, at a pH from 1.2 to 2.8. Bromthymol blue (yellow to blue, pH 6.0 to 7.6), and for the alkaline range, thymol violet (yellow, blue, violet, pH 9 to 13.) There are a number of other indicators whose ranges lie between these.

To determine the pH of a solution with these indicators, the proper indicator is used corresponding to the expected hydrogen ion concentration, and a few drops added. The color produced is then compared with a control of known hydrogen ion concentration containing an equal amount of the same indicator.

Of particular interest to the physician was the discovery that certain substances exert what is known as a buffer action. It was found that, if one drop of hydrochloric acid is added to a small amount of water, it changed the pH from 7 to 3, but, if the water contained a proteid or an amino acid, a col-

loid, or some salt of a weak polybasic acid, such as a phosphate, carbonate, citrate or borate, the pH was only very slightly changed. This is due, in the case of colloids, to adsorption, with the proteids, etc., to the formation of salts, but in the case of the salts of weak acids, it is due to the fact that the hydrochloric acid replaces the weaker acid in the combinations with the bases, and the released weak acid does not ionize to as great an extent; therefore, the hydrogen ion concentration is not greatly changed. All body fluids exhibit this buffer action, and, therefore, tend to maintain a relatively constant pH. This is highly important to the organism, as this buffer effect prevents excessive reaction changes.

The life and growth of all living cells are strictly limited by the pH of their environment. There is a minimum, optimum, and maximum pH for growth and for life of every species of living cell, either plant or animal. The optimum for life among the bacteria may be different from that for growth, and it has been determined that while the diphtheria bacillus will grow rapidly at a pH below 7.2, it produces toxin only if the pH is between 7.2 and 8. Therefore, it can readily be seen that diphtheria bacilli may grow in an acid throat but not be able to produce toxin and the symptoms of diphtheria.

Proteins function either as acids or bases, and are therefore known as amphoteric electrolytes. Protein may dissociate into hydrogen ions and negatively charged groups, or into

hydroxyl ions and positively charged groups. Enzymes also function as amphoteric electrolytes. There is a certain pH for every protein at which point this protein is least soluble in water and this is known as the isoelectric point of that protein. If we change the pH above or below this point, the protein will be in solution, but at this particular point it is thrown out.

The pH of some body fluids are as follows:

Pancreatic juice .....	8.3
Blood .....	7.4
Tears .....	7.2
Saliva .....	6.9
Milk, human .....	7.1
Milk, cow .....	6.7
Urine .....	6.
Urine, cystitis, alk.....	8
Perspiration .....	4.5
Gastric juice, baby .....	5.0

The optimum pH for enzymes

Gastric juice, adult .....	0.9—1.6
Trypsin .....	8.
Pepsin .....	1.4
Invertase .....	4.5

Cocaine is more active above pH7 than below.

Lime juice pH.....	1.7
Lemon juice .....	2.2
Orange juice .....	3.1—4.1
Grape juice .....	4.5

Fresh cow's milk has a pH of 6.8, at pH 6 it begins to taste sour and at the isoelectric point of casein pH 4.6 it coagulates.

## Producing a Superior Race

By CASPER L. REDFIELD, Chicago, Illinois

SOME persons tell us that each individual is the product of heredity. Others tell us that each is the product of his environment. And still others tell us that "all individuals are produced by the actions and reactions of two and only two sets of forces—heredity and environment".

There is another alternative. A man may not be a product of either direct heredity or environment, but of acquired characters extending over many generations. This is something which most persons overlook.

It is very common to refer to some eminent man and say that he was the product of heredity. The fact is that heredity does not produce anything. It is a mere continuation of what existed before.

The statement that a person is the product of the environment is equally untrue. There

is nothing in the environment which will enable it to produce even so much as the inanimate body of a mammal. Even when given such an inanimate body, or the dead body of a formerly living mammal, the environment has never yet put life into a dead body.

The environment may call attention to a particular man, but, if any mental or moral greatness in that man was due to the environment, then the environment and not the man should get the credit.

A man's status in this world is determined by what he does while he is alive. Consequently, it is the life within the body, and not the physical body itself, which determines a man's status. Tom Thumb and the Siamese twins were famous in a way, but no man ever became eminent by reason of some peculiarity of his body.

The most fundamental characteristic of living organisms is their capability of developing their own powers by their own activities. It is a characteristic which belongs to life as such, and not to the body, as is evident from the fact that it exists in a live animal and not in a dead one. As an illustration of what I wish to set forth, I will take the recorded development of trotting power in the old time champion, Goldsmith Maid.

**TABLE I**  
**Extreme Speed of Goldsmith Maid.**  
**One Mile**

At Age of	Time	Feet per Second
Eight years .....	2:36 .....	33.83
Nine years .....	2:30 .....	35.20
Ten years .....	2:24½ .....	36.54
Eleven years .....	2:22½ .....	37.05
Twelve years .....	2:19½ .....	37.85
Fourteen years .....	2:17 .....	38.54
Sixteen years .....	2:16 .....	38.82
Seventeen years .....	2:14 .....	39.40

This record shows that Goldsmith Maid trotted a mile in two minutes and thirty-six seconds at the age of eight years, and at the age of seventeen she trotted a mile in 2:14. A horse is full-grown at three or four years of age, and this table shows what can occur in the adult life of an animal. This increase in trotting power did not come because she was growing older. It came because each year she was exercising her trotting power. No such improvement can be made in a dead horse, and it cannot be produced in any live horse which stands idly in a stall or paddock. It is the product of the activity of life, and of nothing else.

Another important point in connection with this record is the fact that, at the time Goldsmith Maid was conceived, no horse in the world had ever trotted a mile in 2:24½, and those which had approached that speed were not in her ancestry. At ten years of age she had developed, by her own efforts, a trotting power greater than any possible inheritance, and for seven years she continued to develop still more trotting power.

The trotting power which Goldsmith Maid developed after ten years of age was not a part of her heredity, and it was not the product of the environment. It was strictly an acquired character, because it never existed in any previous horse, and it did not exist in her until she acquired it. She did not acquire it without activity, and she did not acquire it suddenly. The factors involved in producing an acquired character are activity and length of time the activity is continued. A study of the inheritance of acquired characters involves

a study of these factors as they existed at the time of reproduction.

The previous table shows the development of trotting powers with age when there is continuous activity. The Binet system recognizes a similar development of mental powers in children. It sets a certain degree of mental development as being normal for a five-year-old, a higher degree of development as normal for a six-year-old, a still higher degree for a seven-year-old, and so on. The particular system used in this mental testing runs out at about the time the child reaches eighteen or twenty years of age, and many of the mental testers have thought that mental development ceases at about that age. They said that what came later represented things learned and remembered, and not mental development.

But it requires mental power to learn a thing and carry it in memory while learning a second thing. It requires more power to remember two things while learning a third, more yet to remember three things while learning a fourth, and so on. From youth to old age we carry more and more in our memories, and the amount we thus carry is a measure of our growing mental power.

But the psychologists did a good turn in calling attention to the distinction between the power of learning and the thing learned. The power of learning is characteristic only of living things, is a biological characteristic, an acquired characteristic, and it is an inheritable characteristic. Some persons have inherited greater power of learning than have others. But the thing learned is not a biological character, and is not biologically inherited. It is necessary to call attention to this, because the examples cited to show the non-inheritance of acquired characters really show no more than that non-biological things are not biologically inherited.

Whether a person is an evolutionist or a fundamentalist, he is faced by the fact that our eminent men were *produced* in some way from ancestors not as good as they were. If they were not produced by direct acts of either heredity or environment, then it is reasonable to do a little investigating to see if they were not produced by acquirements which became inherited. The cases of Goldsmith Maid and the Binet system show how biological characters are acquired, and it is known that trotting power and mental ability are inherited things.

If our great men were produced by acquirements and the subsequent inheritance of the characteristics which made them eminent, then

they should be offspring of parents who had developed their own mental powers by mental activity extending over a considerable period of time before the offspring were produced. This means educated parents and elderly parents; activity and time being the factors involved in making large acquirements. Also, if acquirements made by the parents are transmitted to the offspring, then acquirements by the grandparents will be transmitted to the parents and by them passed along to the offspring under question. This means investigating the grandparents to see what their mental activity was, and how old they were when the parents of the eminent men were born. And further, the more eminent the men for intellectual force, the more pronounced should be the results found in their ancestries.

Going to encyclopedias, I dug up the men most eminent in history for intellectual ability. It is surprising how little we know about the ancestries of these eminent men, but for 571 of them I could find the ages of the fathers when their eminent sons were born, and could get enough about earlier ancestors to get a total of 1,028 birthranks. The term "birthrank" is one I use to indicate the age of the father when the child is born. It represents the child's inheritance as measured by the age of the parent.

Getting the ages of the fathers means nothing unless there is some standard of measurement by which we can determine what they mean after we get them. To establish such a standard, I went to genealogies of New England families and determined the distribution of births recorded there. New England families which get into genealogies are the kind of stock from which eminent persons come; so, it is proper to compare the manner in which eminent men were produced with the way that New England families reproduced. The results were condensed in Table II.

The first column gives the ages of fathers

divided into five-year periods. The second column gives the New England birthranks in percentages. Thus, 9.06 percent of births were of children whose fathers were less than 25 years of age; 23.05 percent were children of fathers from 25 to 29 years of age; and so on. The third column gives the distribution of birthranks among the great men of my list, and the fourth column gives the relative value of the father's age in the production of great men of this quality. If a person with a birthrank of 24 or less has one chance in a million of reaching a certain degree of eminence, then a person with a birthrank between 25 and 29 will have 2.356 chances, and so on. This last column is put into the diagram shown in Fig. 1.

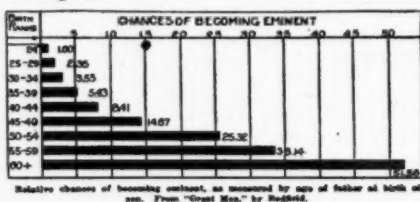


Fig. 1

Havelock Ellis has published a book under the title of "A Study of British Genius." In this he gives the ages of the fathers of his eminent men in 299 cases. He did not carry his investigation back to the grandparents, so it lacks something of the comprehensiveness of mine. The men in his list do not average of so high a quality as those in mine, because he limited it to the British Isles, whereas, I picked out the greatest men recorded in the entire history of the world. Ellis did not prepare a standard of comparison, but, after giving eight tables relating to the ages of parents, he sums up the matter on page 132 as follows:

"On the whole it would appear, so far as the evidence goes, that the fathers of our

TABLE II  
GREAT MEN BY REDFIELD

Percentage of Births to Fathers of Different Ages			
Ages of Fathers	In Normal Pedigrees	Great Men	Relative value of Father's Age
24	9.06	1.63	1.000
25 to 29	23.05	9.77	2.356
30 to 34	26.00	16.63	3.557
35 to 39	19.67	19.19	5.426
40 to 44	13.39	20.23	8.406
45 to 49	5.50	14.53	14.670
50 to 54	2.22	10.12	25.328
55 to 59	0.72	4.30	33.138
60 +	0.39	3.60	51.562
	100.00	100.00	

eminent persons have been predominantly middle-aged and, to a marked extent, elderly at the time of the distinguished child's birth. . . . There has been a notable deficiency of young fathers and, still more notably, of young mothers."

While Ellis did not prepare a standard of comparison as a basis for the statement just quoted, we can put his findings alongside of the New England standard and thus get an accurate view of the situation. This is done in Table III, and a diagram of the last column of that table is given in Fig. 2.

TABLE III  
BRITISH GENIUS BY ELLIS

Percentage of Births to Fathers of Different Ages

Ages of Fathers	In Normal Pedigrees	British Genius	Relative Value Of Father's Age
24	9.06	3.68	1.000
25 to 29	23.05	15.05	1.675
30 to 34	26.00	27.09	2.565
35 to 39	19.67	19.73	2.470
40 to 44	13.39	14.72	2.706
45 to 49	5.50	10.03	4.490
50 +	3.33	9.70	7.172

If we compare the Ellis diagram with my diagram, it is seen that the difference between them is one of degree and not of character. I find the age of the father, in the production of superior men, to be more important than Ellis finds it, but that is really due to the difference in the quality of the men in the two lists. When it comes to men of very great inherited caliber, it is only under exceptional



Fig. 2. Relative chances of eminence, as measured by age of father at birth of son. From data by Havelock Ellis.

circumstances that it is possible for such a person to be the son of a young father. When we take a list of average citizens, the ages of the father correspond to the normal distribution. And I have found that, when we examine the ancestries of notoriously feeble-minded families like the Jukes, Kallikaks, Ishmaels and so on, there is an excess of young fathers and a deficiency of elderly ones.

In addition to giving his own investigation, Ellis also gives the results of similar investigations of the fathers of 39 eminent men by Yoder, and 100 men of science by Galton. Of these Ellis says:—"In Yoder's group of 39 fathers of men of various nationalities, the average eminence was of a higher degree than mine and much higher than Galton's." We

TABLE IV  
EMINENT MEN BY GALTON AND YODER

Percentage of Births to Fathers of Different Ages

Distribution according to			
Ages of Fathers	Normal	Galton	Yoder
29	32.11	16.00	7.70
30 to 39	45.67	56.00	58.97
40 +	22.22	28.00	33.33

may condense these two investigations into Table IV.

It will be seen from this table that, when the ages of fathers of eminent men are considered, both Galton and Yoder find a deficiency of young fathers and an excess of elderly ones. This is the same thing that was found by Ellis and by me. It was also found by Lombroso ("Men of Genius," p. 149). Five persons working independently have found the same thing, and no one has found the contrary.

In the last edition of Who's Who in America, S. S. Visser makes an investigation into what kind of men were the fathers of those persons who appeared in the 1922-1923 edition of that book. As those persons were born at an average date of about 1870, Visser goes back to the U. S. Census of 1870 to prepare a standard of comparison. From these we can make up comparisons of father-education which will correspond to the comparisons of father-age, previously given.

Visser divides these fathers into five groups: professional men, business men, farmers, skilled workmen, and unskilled laborers. This is a division of fathers by the degrees of their mental activity and amount of education at the time their sons were born, and it corresponds to my division of fathers by their ages at the same events. Professional men are men who had college educations, or who obtained the equivalent by private study. They are men who are necessarily mentally active in following their professions, and mental activity builds up mental power exactly as trotting activity builds up trotting power. At the

other extreme, unskilled laborers include all illiterates and those persons who are mentally inactive. Putting Visser's classification and findings into tabular form, we have table V.

In this table I have taken the parental value of the skilled workman as unity. If the son

It will be seen that the tests made in Ohio, Indiana, Wisconsin and Iowa divide the children according to the education of the parents in the same way that Visser divides them, and each one of the five investigations shows the same result. The greater the mental

**TABLE V**  
**MEN IN WHO'S WHO. BY S. S. VISHER**  
**Percentage of Births to Fathers of Different Educations**

Education of Fathers	Distribution in 1870	Distribution in Who's Who	Relative Value of Father's Education
Unskilled laborers	45.0	0.4	0.025
Skilled workmen	18.0	6.3	1.000
Farmers	29.5	23.4	2.266
Business men	5.0	35.2	20.114
Professional men	2.2	34.3	44.545

of a man having the education of the average skilled workman of 1870 has one chance in 70,000 of getting into Who's Who in 1922, then the son of an unskilled laborer would have one-fortieth of a chance; the son of a professional man would have 44.545 chances; and the sons of men having intermediate degrees of education would have corresponding intermediate chances. Put into a diagram, we have

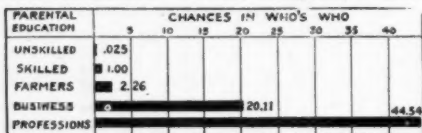


Fig. 3. Relative chances of getting into Who's Who in 1922, as measured by the education of the father before the birth of the son. From data by S. S. Visser.

In the *Scientific Monthly* for November, 1924, Hornell Hart of the Iowa Child Welfare Research Station refers to some psychological tests made by others, and then gives a table of his own investigation. Of the work by others he says:

"In the three cities in which are located the universities of Ohio, Indiana and Wisconsin, studies have severally been made by psychologists from those universities to determine the comparative abilities of the children of occupational levels. In each of the three studies, the children of professional men average by far the highest in mental-test ability, the children of business men next highest, skilled workmen's children next and the children of unskilled laborers lower than any of the other three occupational groups."

He then gives his own table which follows:

**TABLE VI**  
**Mental Test-Ability of Children of Fathers of Different Degrees of Education.**  
**By Hornell Hart**

Status of Father	Average I. Q. of Children
Professional men	114
Business and clerical	104
Skilled trades	97
Unskilled laborers	91

activity of the parent before producing his child, the better is the mental quality of that child. Up to the present, no one has shown the contrary.

Let us turn aside and see what happens in milk production by cows. When a cow has her first calf, she will produce a certain quantity of milk. If she is regularly bred and regularly milked, she will produce more when she has her second calf, more yet when she has her third calf, still more when she has her fourth calf, and so on up to at least her tenth calf. For the purpose of determining exactly what happens, I tabulated what was occurring in the Holstein-Friesian breed of cattle, fifteen and twenty years ago, in cows more than five years of age.

**TABLE VII**  
**Milk Production by Age of Cows**

Ages of Cows	Av. Milk in 7 Days
5 to 6 years	433.75 pounds
6 to 7 years	449.00 pounds
7 to 8 years	449.51 pounds
8 to 9 years	458.10 pounds
9 to 10 years	468.71 pounds
10 to 11 years	490.35 pounds

As cows regularly produce their first calves when two years of age, this table shows that development of milk-producing power, like trotting power in horses, continues long after the attainment of full growth. This table was made by following the same cows through successive years. I am calling attention to this so as to distinguish this work from the ordinary tables which represent the production at different ages by different cows.

The quantity of milk which a cow produces when she has her first calf represents her heredity as a milk producer. What she produces in later years more than she produced at first, represents acquired capacity and not heredity. A cow does not do any inheriting after she becomes a mother. And the added capacity obtained by acquirement is identical

in characteristics with the capacity inherited. Is this acquired milk-producing capacity which is added to her heredity transmitted to the next generation so as to become part of the heredity of that generation? If so, then improvement in inherited milk-producing capacity must come through a cow's later calves, and not through her earlier ones.

For Holstein-Friesian cattle there are two registration books. In the Herd Book are registered those cows which belong to the breed. In the Blue Book are registered those cows which pass a very high performance record. I went to the Blue Book and picked out the 144 cows which produced, over several years the greatest quantities of milk for their ages. I am calling attention to this proceeding because the Blue Book classifies cows by but-

thought they were doing, but I do not want my work confused with theirs.

I extended the pedigrees of those 144 cows so as to get three generations of ancestors. In three generations of ancestors there are seven dams, and  $7 \times 144$  would give 1,008 dams in these pedigrees. But, in eight of the pedigrees there was lacking information about one dam each, so that I had 1,000 dams, and consequently 1,000 calves from those dams. I then examined the records to see whether those calves were first, second or other calves. I next established a standard for comparison by going to the register to see what proportion of Holstein-Friesian calves are first, second or other calves. Next I brought these things together and calculated relative values as before. This gives Table VIII.

TABLE VIII  
Distribution of Calves in Normal and Best Pedigrees

	Normal Pedigrees	Best Pedigrees	Relative Value
First calves .....	317	142	44.72
Second calves .....	193	130	67.50
Third calves .....	145	141	92.24
Fourth calves .....	106	109	102.44
Fifth and sixth calves.....	142	219	154.12
Seventh and ninth calves.....	80	185	228.68
Later calves .....	17	74	435.30
	1000	1000	

terfat production and not by milk production, and I want to distinguish my work from those things which are based on the commercial classification used in the Blue Book. Also, I did not simply take those cows which produced the greatest quantities of milk, but those which produced the greatest quantities *for their ages*. I was laying a strictly biological foundation, and I want to distinguish my work from certain other works which appear similar, but which fail in that characteristic.

The increased milk production set forth in Table VII is made by cows and not by bulls. Consequently, when making an investigation on milk production to see if acquired characters are inherited, we examine the ages of dams and not the ages of bulls. Or, what is the same thing, we inquire whether improvement comes through the earlier or later calves of a cow and not the earlier or later calves of a bull. I mention this because some investigations by other persons examine the ages of the bulls to see what effect that will have on the butterfat produced by their daughters. I do not know what those other persons

Here we have the same thing we had before. Whether it is mental power or milk-producing power, the inherited power-capabilities of the offspring are determined by the extent to

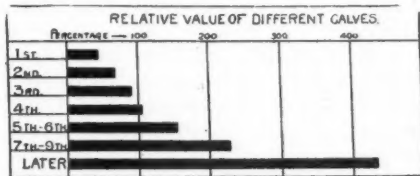


Fig. 4. Relative value of different calves of the same cow in the evolution of greater capacity of milk production. Data by Redfield.

which the parents exercised those powers before they produced their offspring. It means that the qualities of individuals are produced by acquirements, and not by either heredity or environment.

Nor is this all. I went to the trotting horse and made a pedigree for each and every horse in the world which had succeeded in trotting a mile in two minutes and ten seconds. When these were analyzed for ages of sires and dams, they yielded the same kind of diagram I found for eminent men. When

the pedigrees were analyzed for special training and racing given to sires and dams before breeding, they gave the same kind of diagram found for Visser's work. And when I traced

the English setter for a period of 80 years from 1825 to 1905, the pedigrees of field trial champions yielded the same forms of diagrams.

## The Mineral Springs of France

By DR. B. SHERWOOD-DUNN

Officer d'Academie, Corresponding Member Societe Obstetrique Et Gynecologique de Paris, Ex-Colonel Medical Corps of the Army

FRANCE is the second richest country in the world in the number and variety of its Mineral Springs, Italy coming first. The history of mineral springs in France dates back to the Gallo-Roman period and there still exist the remains of baths founded and frequented by the ancient ancestors of the race. After the invasion by the barbarians, the hydrological treatment of disease became almost lost to view during the middle ages. At the period of the Crusades certain of the waters like Aix-les-Thermes at Neyrac were employed in the treatment of leprosy where one of the basins still bears the name of "Lepers' Basin". The nearer we approach the period of the Renaissance, the greater is the number of forgotten stations rediscovered and revived. Rabelais enumerates those in use during his time and in the writings of Montaigne are found curious recitals of the life, habits and the diseases treated at numerous springs.

In the seventeenth century hydrology had again assumed an accepted place in the treatment of disease and the first business project of the bottling and exportation of mineral waters was initiated.

### Early Students and Investigators

In the eighteenth and beginning of the nineteenth century the serious study of hydrology as a distinct department of therapeutics began, and the writings of such men as Vaquelin, Patissier, Bertrand, Figuier, Magnan, and Fontan might, to the present day, well merit careful study. Valuable knowledge was also added to the science by the geological studies of Daubree and Elie de Beaumont.

We owe to such chemists as Ossian-Henry, Filhal, Lefort, Wilm and Garrigou, in France, the perfection of methods of chemical analysis which have come to such a degree that the rare substances, such as rubidium, arsenic, lithium, cesium and radium are determined.

We owe to such men as Durand-Fardel, Garrigou, Gubler, Pidoux, Rotureau and Labat, the published results of the clinical therapeutics and indications, and to none more than

my former master and present friend, Professor Albert Robin, who is probably today the leading authority in Europe upon the application of mineral waters to the treatment of disease.

### French and German Methods Compared

The French practitioners lead in the progress made in the specialization of the application of mineral waters, and the modern French tendency differs widely from the German ideas and practice. Dr. Bardet gives as the reason for this divergence, the fact that the German waters are in large part composed of the sodium chloride varieties, with an almost equal number of springs containing iron in small quantities, a few of the calcic sulphate variety and a small number of the bicarbonate. Nearly all of these are mixed and of feeble mineralization. The sulphur springs are few in number and are of an accidental type; that is, the sulphates are transformed into sulphides when in contact with organic matter.

The monotony and banality of the German springs has led the doctors to devote their chief attention to the physiotherapeutic application of the waters and in nearly all of their stations the administration of the water is regarded as accessory to the treatment.

The French medical conception is entirely different and based upon the properties of the spring, specializing the treatment to follow its dominant quality in each instance.

### Properties of Various Springs

Vichy specializes in diseases of the liver and stomach, and arthritis; Chatel-Gyon and Plombières in intestinal affections; Mont Dore in the cure of asthma; la Bourboule is applied to those affections where arsenic is indicated, the dermatoses and adenopathies; Royat and Bourbon Lancy have proved themselves remarkably efficacious in the relief of arteriosclerosis and hypertension; Aix-les-Bains and Bourbon l'Archambault specialize in the treatment of rheumatism in its multiple forms; Luxeuil in genitourinary diseases; Evaux in the utero-ovarian stimulation and amenorrhea;

Neris in nervous affections; Uriage is highly useful when it is desired to associate sulphur with the mercurial cure; Contrexéville, Evian, Capvern, Martigny and Vittel have achieved a great reputation in the treatment of arthritis and diseases of the kidney; and of these Contrexéville is the oldest, best known and most celebrated; Saint-Nectaire specializes in the treatment of albuminuria; Lamalou in tabes; Bagnoles in diseases of the venous system; Brides in obesity; Ussat has greatly benefited exophthalmic goiter; Saint-Christan specializes in psoriasis and particularly the buccal variety; Forges and Bussang address themselves to the anemias, and the Pyrenees stations — Luchon, Cauterets, Eaux-Bonnes, Amélie-les-Bains, varying in sulphurous qualities, specialize in application to diseases of the respiratory system. There are numberless saline springs recommended for uterine diseases, and *tuberculosis gauglionnaire*, and mud baths of great renown—Dax, Balaruc, Barbotan, Saint-Amand for the treatment of arthropathy and articular rheumatism with gouty deposits. The country is so rich in mineral springs that a greater number of them remain unemployed, to the regret of many practitioners who have called their special qualities to the public attention as well worthy commercial development.

#### Radium and Rare Gases Found

The discovery of radium by Curie and its presence in certain of the mineral waters gave a new impulse to the study of hydrology and the conviction that the great benefits derived from certain of the springs whose analysis did not exhibit a high degree of mineralization could be attributed to the emanations of this metal.

La Bourboule, Bagnères-de-Luchon, Plombières are particularly remarkable for the radiations of radium.

With the discovery, by Lord Ramsey, of rare gases in the air, Mourea discovered that these gasses—helium, neon, argon, krypton, xenon, were found also in the mineral waters. Helium gas has been found to exist in the proportion of 10 percent in the spring of Santenay; the springs of Bourbon-Lancy, and Neris also possess this gas in notable proportion, while the gases of argon, krypton and xenon are found in the same proportions in all of the mineral springs as in the air.

France is the first country to recognize the importance of hydrology as a prominent and important department of therapeutics and to organize a center of investigation and instruction looking to its scientific development.

#### Hydrology and Climatology as a Specialty

At the Congress of Physiotherapy in 1910, the effort to create a separate and distinct department of hydrology and climatology was frustrated by the German delegates who insisted upon these departments remaining as simple branches of physiotherapy, but at the last International Congress held in Madrid the right to autonomy of these branches was acclaimed and France at once organized the Institute of Hydrology and Climatology as a scientific center for their study. The Institute is divided into two sections, one of pure science and one medical.

The scientific department is composed of a laboratory in charge of Professor d'Arsonval, devoted to the physical aspects of mineral waters and climates.

A laboratory in charge of Professor Moreu studying the radioactivity and rare gases of mineral waters.

A laboratory under Professor Urbain of the Sorbonne devoted to the chemical analysis, spectrography and determination of the rare metals contained in waters.

A laboratory in charge of Mr. Bordas, Director of Customs, specially directed to the detection of imitations, substitutions or falsifications concerned with the commercial aspect of mineral waters.

The medical department comprises a laboratory presided over by Dr. M. G. Bardet attached to the College de France, who not only studies the general and special hydrological questions, but gives a regular course of lectures covering every aspect of the question, which is of the highest value and utility.

A second laboratory is presided over by Professor Albert Robin, as a department of the Faculty of Medicine of Paris for the teaching of the subject.

The degree to which a spring is frequented by those desiring treatments depends almost wholly upon the degree to which the medical profession advise its employment.

How can the doctor prescribe a water cure if he is not acquainted with the therapeutical qualities and action of mineral waters, and where can he better secure this information than in the course of the medical studies and instruction?

The chief reason why Germany has led the world in the development and attendance at her thermal stations lies in the fact that for years she has taught the therapeutics of hydrology in her schools, and consistently and persistently carried an intelligent and liberal campaign of advertising in foreign lands.

Now that France has adopted the first of these two essentials, and in a complete and thorough manner, it should not be many years

before she takes the lead in her thermal stations, because of their undoubted therapeutic superiority.

## The Web of Life

By BURTON R. MILLER, M.D., Tiffin, Ohio

THE web of a physician's life may be likened to a fabric of mingled yarn, good and evil, woven closely together. Sometimes, the web may be so beautifully woven that the fabric distinguishes itself by the grandeur and magnificence of its figured character. Oftentimes, however, the network of the web proves to be but delicate threads spun with the cunning of the spider—to entrap innocent, unsuspecting prey. Fortunately, for the membership of the medical profession, the former weavers greatly outnumber the latter. However, I am inclined to agree with "Punch", who has said that the usual experiences in our professional lives are really necessary to the web.

Governed by the conscious motive to weave a story, the web of which is truthful texture—uncolored and plain in fabric, that will illustrate these two weavers in the medical profession, I trust that I may construct it in a way that will interest the readers of our excellent CLINICAL MEDICINE.

Twenty-seven years ago, I located, after my graduation, in a village of fewer than eight hundred people—and I was known as "Doctor Number Five". The only vacant house in the village was the half of a two-apartment dwelling, with the front room of the other half as my office. The home was directly opposite that of the "leading physician" of the village—a most disastrous situation for me, as I very soon realized.

In due time I called, professionally, on my confreres. The only one who received and freely accepted me as a colleague was an aged, almost-ready-to-retire practitioner. He gave me some excellent advice and told me many things I should know of my location, which proved to be very beneficial to me as the years passed. When I left his office, he shook my hand warmly and said earnestly, "I will keep an eye on you, for I do want you to succeed. You must come and chat with me often".

I thanked him gratefully for his kindly, fatherly interest in my behalf, and I assured him that I was very fortunate to have him as a confidential friend and helper. I made many visits to his home, and, when he started

on that long, endless and mysterious journey, to realms unknown, I was at his bedside. He was of that rare kind of "human material" that God uses to build His kingdom on earth. And, if Sir Arthur Conan Doyle's theory is true—and who would not want it to be true?—then, I am still under the sainted doctor's influence and safe guidance.

But, the greater part of my story is to be about the "local leader" in the village and country medical practice. I shall write mostly of him, simply because he interested himself mostly in me. You, fellow practitioner, may be able to comprehend the motive of his interest in my welfare, as you read the story. I shall be just as candidly fair with him, by requesting you to consider my conduct in behalf of his welfare. I ask no plaudit of you—only a just and careful consideration of the evidence given you, that's all.

My colleague had paid "a goodly sum" for his home and practice, and, perhaps, he had a seemingly just reason for considering me a "brazen interloper" in his purchased field of operation. Being nearly \$2,000 in debt, at the time I moved into the village, I must honestly confess that I really did lack the required nerve to suggest to him that I should be pleased to buy him out. And I am still inclined to believe that he never entertained the brilliant thought of individual gain, by offering to sell out to me. Consequently, there was a complete misunderstanding between us with regard to the real status of each other's lawful, and even ethical rights. He deemed himself sole owner of the domain, relative to his rights and mine, by the indisputable right of purchase; while I entertained the idea that I had a lawful, as well as ethical, right to a temporary homestead entry, according to the prevailing sentiment that every young man is justly entitled to the privilege of obtaining a livelihood, through honest toil and effort, which the world of competition owes him—if he is ever faithful to his trust. Therefore, the doctor and I stepped out upon the broad plain of competitive life, where the great battle of the supremacy of the rights of men is being strenuously waged, every day of ceaseless time.

Before I entered the arena of medical competition in the village, several young physicians had made an effort to establish themselves as medical practitioners. From my colleague's direct testimony, I admit that it really did seem that he had succeeded in precipitating their failures. So successful were the results of his efforts in dislodging them, that he did not hesitate to privately, and publicly too, proclaim my sure failure within six months. Surely, I was most grateful, and most thankful, too, for the magnanimous extension of time in my painful and most embarrassing contingency.

But now, I come to a most interesting, and at the same time the most tragical, part of my story—for history came mighty near repeating itself by another failure in medical practice. The remaining months of a most aggravatingly healthful summer—and the same may be said of the autumn months of that fateful year, 1897—were lean, agonizingly lean, lonesome months to me. My good wife and I—and my faithful mare, too—continued to exist on borrowed money, and the prospects for a happy, contented and prosperous future were exceedingly vague, indeed.

By nature, I have always been cheerful and happily optimistic, but I am going to confess, right now, after twenty-seven delightful years of service among the sick and afflicted, that there were moments in my first few months of professional experience when I really did feel "just a little bit blue". But friendship, that ever-ready umpire in the game of life, between happiness and despair, intervened, occasionally, in my behalf; and I was lifted from the slough of despondency every time my good friend, E. B. Caldwell, of Mansfield, Ohio, called to sell me drugs. He has sold me drugs from the third month of my practice.

Mr. Caldwell always assured me that there was no doubt about my ultimate success—for the work was there to do, and I was sure to get my share of it. He advised me to always remember the old adage, "Grab a firm hold on the root of success—and never let go". But, even from that day, I found my grip on the root slipping, just a little, now and then; and I sometimes felt ready to surrender to the subtlety of mental fatigue. But, then, I would recall my friend Caldwell's assurance that the work was there for me to do if I would only hold fast to the old root and firmly determine to plod bravely on up the sunlit highway of success. And, in these after years, I have found that the same thing is true of

every location—the work is there to do if one will only have the patience to wait for its coming. No physician will fail in any location, if he will determine, by constant and industrious effort, to make success his ultimate goal.

When the extremely severe months of mid-winter came, even my usually patient mare became dissatisfied with almost constant imprisonment in her stable. One bitterly cold morning, when I went to the barn to feed her, she jumped about vigorously in her stall, kicked up her heels in strenuous exercise, then came to me and bit me just deep enough to arouse me from my very apparent lethargy, which was no doubt due to my own almost continuous inactivity. Seemingly, she looked me squarely in my eyes, with unfeigned compassion, and I interpreted her thoughts as follows: "What's the matter with you, anyway? Aren't you a doctor, according to the law of the land? Then, why aren't you up and doing? Why don't you try the old way of make-believe? Hitch me to the buggy and I'll take you down the road at such a pace that all the people will sit up and take notice, wondering what's happened. You need more vim, original pep, and I need more exercise. Come, let's do it, right now. You know I'm not earning my keep".

I had subscribed for *The Alkaloidal Clinic*, *The Medical World*, and *The Medical Council* and had read every advertisement of sale of practices each number contained. One day, I read of a practice for sale in a nearby county. I determined to go, on the morrow, to investigate the proposition of sale.

The sun was very bright the next morning but the air was keen and biting with frost, as I boarded the train for the nearby county-seat. On my way to that village doctor's home, as I jogged along in the livery outfit I had hired at the county's capital, I seemed to be possessed with the annoying feeling that I should have remained at home. However, I continued on my tour of investigation, carefully observing the environments of the village and the confines of the village itself. All were disappointingly inexpressive of either beauty or prosperity. Truly, I was never more anxious to return to my home—and once again I grasped a firm hold on the same old root of determined purpose.

In my lifetime, I have observed that education, both secular and religious, means much more than mere schooling. In its full interpretation, it means the mind swept clean of superstition, of hate, of jealousy, of bigotry and ugliness; and always opened wide to right

reason, to mutual cooperation, to actual freedom, and transcendent beauty. And as I write, the spiritual import of the thought, "We can develop only as we cooperate with the loving Spirit of God," obtrudes upon my mind, and I am again persuaded that envy, hatred and jealousy come into our hearts, only when we are aliens to that same loving Spirit.

It was a cold stormy day in February, the month of bluster and frequent change, the turning time of winter into approaching spring, and I sat before the red-hot, old-fashioned, wood-heating stove in my private office. My bravely courageous and industrious wife was preparing our dinner on the old stove in our small kitchen. It was then that the arch-demon of discontent again assailed my thoughts. I recalled how necessity had caused me to go to the woods and cut the very wood we were burning in the two stoves. I knew, even then, that there is such a thing as professional pride, and I felt just a little bit ashamed of myself.

After that, everybody seemed kinder and more friendly to me; in fact, the whole world had taken on a brighter aspect. But my colleague seemed to be possessed with a keener determination to oust me. His wife would sit at the front window of their home and carefully observe all who came to me for consultation and treatment. He would then accost my patients on the streets, and severely chide them for coming to me. He seemed to talk to them in a way that indicated that he really owned them. Indeed, he had become so bold that he would deliberately ask them why they left him and came to me. But after all, he was both kind and generous to me, for he told them that I probably knew enough about medicine, so far as book work was concerned, but I lacked woefully the necessary experience in the great art of medical practice and I would never succeed in doing any good in their cases. To everyone, he would boast, "I have been practicing the art of medicine for a number of years, and I *KNOW* just what your ailments are, and I *KNOW* just how to treat them with success. You certainly have made a grave mistake by leaving me and going to that young beginner in medicine."

One little instance comes to my mind, just now. It happened near the close of my six months' respite. A tall, thin, dark man came to me and said, "I am going to send my wife to you for treatment. I am getting awfully tired of paying Doctor ——— so much money of my hard-earned wages. If he

would do her any good, I wouldn't say anything, but she has been doctoring with him for months and without the least benefit, apparently. I'll send her to you".

I thanked him gratefully and told him I should be pleased to have him send his wife to me for consultation and treatment. Several days passed, and then, a short, stout, dark-complexioned woman of forty-five, perhaps, came into my office. She sat for a moment, glared at me ill-humoredly, and said tartly, "I am Mrs. DeW., and I have come to see you because my husband made me come. I want you to know that I did not come on my own volition, for I am perfectly satisfied with my doctor."

Concealing my embarrassment as best I could, under the circumstances, I told her I was pleased to know her, but she failed to smile, in the least. Carefully observing her firm attitude of loyalty to her physician, I said pleasantly, "It is right that you should continue to like your physician, and I admire your loyal stand in his behalf. I shall speak to your husband when I see him, and I shall tell him that you desire to continue treatment with your own doctor. I am quite sure that I can arrange matters satisfactorily to you".

Then, the high tension began to give way a little and, after a few moments, she replied smilingly, "Well, since you talk like that, I think I shall give you a chance." I, too, smiled happily, and then said earnestly, "You won't get angry if I say something to you that may appear to be unkind, will you"?

She looked at me, with a happy smile, and assured me that she knew I would not say anything to her to wound her feelings. However, when I said seriously, "You eat too much," the same ugly expression she wore at the time of her entrance into the office, came back momentarily on her countenance, and she exclaimed, almost savagely, "My husband told you that."

I held up my hand in an attempt at pacification, and replied kindly, "You do your good husband a grave injustice. He said nothing to me except that you were a patient of another doctor, and that he would send you to me". Then I added earnestly, "You will not require much treatment. Being of a nervous-bilious temperament, all you really need is to free your body of its toxins, internal poisons, and to keep it free from them by proper diet, that's all. I am sure you will feel like a different woman in a very short time."

The third week, when I was prescribing for

her, she asked me seriously, "Don't you intend to change my medicine?" Somewhat surprised at her question, I asked her why she asked it. She answered earnestly, "My former doctor always changed my medicine whenever I seemed to be getting better."

I told her that his way was a most successful one—to keep patients coming to his office for treatment. I assured her that my way was to keep my patients on medicines that were bringing about cures and that no change would be made in her case, unless really necessary. Then she said indignantly, "I am glad my husband insisted upon my coming to you. Just think of the money I have paid that doctor! And my husband is only a hard-working carpenter!" I treated her only a few weeks longer; all she needed after that was strict adherence to the everlasting principle of good health, "Clean Out, Clean Up, and Keep Clean." From that time on, she was a very faithful missionary in my behalf, and sent me many patients.

The six months' respite that my colleague had allotted me, at the time of my settlement in the village had come to its end, but I remained as a medical practitioner in the village. The old familiar saying, "A knock is only a boost, after all," has proved true in my experience. My colleague could not refrain from talking about me in every home he visited, in every saloon he frequented, in meat market, grocery store, the cobbler's shop, at the blacksmith's forge, in the lodge room, drug store, dry goods store, barber shop, and on every street corner. This is not an exaggerated statement of facts; it is the absolute truth. And everywhere he talked about me, he started in the minds of his hearers the seed of sympathy for the under fellow. People would come to me and deliberately say, "I came to see just what sort of a fellow you are—I have heard so much about you."

I would join heartily in the laughter that invariably followed, and then I would say seriously, "I should think that the very best way to down a competitor would be to keep from talking about him. I am sure if I wanted to get rid of an undesirable colleague, I would speak of him only when I had to, and then I should say something kind of him. At other times, I should wholly ignore him."

I was called more and more into service among my colleague's former patients; but, when anyone began to inveigh against him, I would say pleasantly, "Tut, Tut! You must not say anything unkind of him, for he is a good doctor and you may need him again,

some day." I invariably pursued that course toward him, and I have never seen the time when I have regretted my action.

More real, genuine happiness is lost in the idle hours of a physician's lifetime than can ever be replaced by the joy of the hours of useful service among the sick. Moments of idleness come to every physician, but the secret of happiness lies in the power to guide his thoughts in the proper channel. Hearts should never be allowed to become black with despair, at any hour, at any minute, or at any second of life. When we have thoroughly learned our lesson of full enjoyment in a life free from envy and distrust, then we shall be divinely happy and at peace with God and man.

A real estate investment made me "a real fixture" in the village, and many who had hesitated to come to me for treatment because of my former location, and because they were not sure that I would remain in the village, now came to me for consultation.

When I was a country schoolboy, and subsequently a country schoolteacher, I was a local correspondent for our county newspapers. I always enjoyed the work and, when a former friend asked me to become the local village correspondent for his paper, of which he was editor and part owner, I joyfully agreed to do the work. My yearly salary was \$100. Small as it was, it helped to build the financial bridge over the rough stream of exacting indebtedness.

The real turning point in sentiment, with regard to the people's opinion of the doctor and myself, was caused by acts of his which plainly showed his prejudiced feelings toward me. It has been said that the man with the most faults has the most to say of the faults of others. The only bad feature about such testimony is that the poor deluded fellow invariably forgets, overlooks, or ignores, his own faults.

The loom upon which the fabric of medical practice is woven should be that of sincere friendship and hearty good-will in fraternal relations. Every really successful physician knows this to be true. To boldly confront the spirit of envy and active antagonism, to reckon with it, and to attempt to obviate the evils that are concomitant with it, should be the course for every honest, conscientious physician.

A charitable study, by a physician, of his colleagues inevitably shows that the same troubles, the same fortitudes, the same feats

(Concluded on page 870)

# Surgical Seminar

Conducted by GUSTAVUS M. BLECH

## Case of Dr. A. Paul Jones, of Camden, Ala.

*Recapitulation.* Dr. Jones submitted for solution the following case, which is reprinted from the October issue.

H. S., white, male, *æt.* 30. Previous history: stomach trouble for years. Present history: The patient ate a large quantity of watermelon on a Saturday, during the early part of the day. That afternoon, he began to complain of pain in the abdomen and took a few tablespoonfuls of salts. At midnight he was seen by a physician, who administered morphine for the relief of the pain which was localized in the umbilical region. The opiate gave him some relief so that the patient rested fairly well all day, in spite of the fact that the upper abdomen swelled steadily. Enemata were administered for obstipation or obstruction, but only the first enema brought out any watermelon. I saw the patient in consultation Sunday at six p. m.; that is to say, about thirty hours after the onset of the present trouble.

His pulse was 96 and feeble; the voice, however, was relatively strong. The abdomen was enormously distended—"strutted"—but the patient neither complained of pain nor was there tenderness on pressure anywhere. There was neither nausea nor vomiting, but the temperature was slightly subnormal, 98 degrees Fahrenheit. I made a diagnosis of intestinal obstruction, probably due to intussusception, and urged immediate operation. When the patient was sent to the hospital an hour after the consultation, he died en route.

The points that suggest themselves to me as meriting careful discussion are:

1. Neither the family physician nor I were aware that death was so near. From this it can be realized that the patient did not make an impression that he was *in extremis*.
2. My diagnosis of intestinal obstruction was based on the short onset, the abdominal distention, the feeble pulse and the failure of the enemata to empty the intestine. The absence of vomiting, nausea and pain remains unexplained.
3. The query suggests itself, whether a ruptured appendix or a perforated ulcer would have given the clinical picture presented.

## Discussions

**General Geo. Acheson, Kingston, N. B., Canada.**—The definite pathological condition present in the abdominal cavity, in this case, was not a matter of immediate importance, and did not call for any refined preoperative differential diagnosis. Dr. Jones was perfectly right in urging operation without loss of time. Unfortunately, too much valuable time had already been lost and the "grim reaper" won the victory by surprise tactics.

Was there anything in this case that should have warned the attending physician of its serious nature, hours before the consultation?

A few hours even might have made the difference between life and death. . . . The steady swelling of the abdomen with the failure of enemata to produce any evacuation, surely was a grave danger signal, demanding an exploratory laparotomy.

The tentative diagnosis of intestinal obstruction, I think, was quite justifiable, though I am not in accord with Dr. Jones as to its probable cause, as I am inclined to accept volvulus, while he suggests intussusception.

In this connection I might refer to the discussion of these two conditions in the Seminar of November 1922, which need not be repeated here. The marked abdominal distention without tenderness to pressure, plus the early collapse point to volvulus.

Perforation of a gastric or duodenal ulcer is a possible explanation, but one would expect, in the earlier stages, rigid abdominal walls and tenderness to pressure, though, on the other hand, the history of prolonged stomach trouble might indicate the existence of an ulcer. A perforated ulcer or ruptured appendix might cause a fulminant type of peritonitis with intestinal paresis and much gaseous distention. All in all, without a glimpse into the abdominal cavity, I would not like to pronounce an absolute diagnosis.

A word as to the absence of nausea and pain throughout the trouble; or, rather, since the appearance of the first symptoms. This can only be explained by the profound toxemia which inhibited the action of the sympathetic and sensory nerves.

I have seen several cases of fulminating ap-

pendicitis which presented pictures very much like the one submitted for solution.

—  
**Dr. Isaac Edwin Crack, Hamilton, Ont., Canada.**—The conditions which occur to me to be differentiated, are: acute obstruction of the bowels, a perforation of either stomach, duodenum or appendix and acute hemorrhagic pancreatitis.

The absence of fecal vomiting after the lapse of thirty-six hours speaks against obstruction and the absence of "board-like" rigidity of the abdominal muscles speaks against a perforated viscus.

The sudden onset of symptoms following hearty eating, in a man with previous digestive disturbances, and the early fatal termination would lead me to diagnose acute hemorrhagic pancreatitis.

At the same time, it would be highly interesting to know whether this patient has had heart trouble.

—  
**Dr. H. R. Conn, Mimico Beach, Ontario, Canada.**—I would rule out intestinal obstruction because there was neither nausea nor vomiting at the onset or shortly after and, also, because, in the later stage, there was no fecal vomiting. Pain of a violent colicky character was not a marked feature, nor was there a picture of most serious illness, which a complete obstruction of thirty hours' duration, necessarily, would have produced. I would rule out a perforation of the appendix because, if that had been the case, vomiting or at least nausea would have appeared early.

On the other hand, one can infer a perforated gastric ulcer for the following reasons: a history of digestive disturbance extending for years; sudden onset of pain, which lessened and returned, later requiring morphia; failure of enemata to produce intestinal evacuation; increasing swelling of the upper abdomen; the presence of mild shock; the presence of distention on the second day of the illness, and, lastly, death, occurring 31 hours after the onset.

Had the perforation occurred low in the abdomen (appendix), there would have been, in addition to some localized tenderness in the right lower quadrant, a swelling of the abdomen, which would have been general and diffuse, rather than restricted to the upper quadrants.

My diagnosis is perforated ulcer of the stomach with the strong presumption that the ulcer is situated on the posterior wall of the viscus.

—  
**Dr. Charles B. Reitz, Palmerton, Pa.,** based on a case with a similar clinical picture in which he performed a necropsy, diagnoses a ruptured duodenal ulcer. In that case fermentation of excessive carbohydrate diet produced extensive distention of the ileum, with telescoping of six feet from the duodenum. An old, apparently inactive, ulcer became stretched and thinned, finally rupturing, with the production of an internal hemorrhage which caused a lethal termination in about half an hour.

—  
**Dr. F. S. Bobbitt, Cashion, Okla.,** favors ruptured ulcer of the duodenum, with a possibility that there was rupture of a gangrenous appendix. That there was a smoldering fire resulting in a conflagration set off by some cause, not excepting a dietetic error, is evident from the history, the phenomena of general peritonitis, expressed by distention of the abdomen, subnormal temperature and feeble pulse.

**Dr. D. William Matthaei, Fessenden, N. D.,** accepts a ruptured ulcer either of the stomach or duodenum. The apparent ileus is paralytic in character simulating complete obstruction. Noteworthy are the history of chronic stomach trouble, the absence of points of tenderness, nausea and vomiting. He rules out, because of these points, rupture of the appendix and for the same reasons also rupture of the gall-bladder.

—  
**Dr. E. C. Junger, Soldier, Iowa,** frankly points to the difficulty presented by this case, as the principal evidence was taken away by the patient forever. In lieu of a solution, he presents the following case by way of comparison. A man, aged thirty, had always been in fair health, except for digestive disturbance and several attacks of "constipation" severe enough to require medical advice and aid, consisting of enemata, laxatives and the like.

The patient partook of a heavy meal on a Sunday, at seven p. m., and began to feel distressed immediately after. Three hours later the doctor was sent for, with the information that the patient had one of his usual "spells." For various reasons, he did not see the patient until three in the morning (Monday). The patient complained of considerable pain in the region of the umbilicus, in both groins and deep in the pelvis. There was pronounced rigidity of the muscles and general distention. Salts, which he had taken, had produced no result. There was no vomiting and both temperature and pulse rate were increased only

slightly. The respiration was shallow and rather hurried. Enemata proved fruitless. A hypodermic of morphine and atropine gave relief and was given with the understanding that an operation was essential. Laparotomy was done twelve hours after the onset. The abdominal cavity was filled with bloody fluid, the entire colon black and enormously distended and the mesenteric veins thrombosed.

When the operator showed the bowel to the members of the family and the minister who happened to be near the operating room, awaiting the outcome, and told them that the prognosis was hopeless, they did not believe him, because the man had not made the impression of being severely ill. Death, however, ensued within twenty-four hours after operation, (jejunal drainage) in spite of the usual measures to relieve the effects of abdominal pressure on the respiratory function.

—  
**Dr. H. K. Shumaker, Bellevue, Ohio,** stresses the necessity of knowing the condition of the heart. A bad heart means embolism of a mesenteric vessel and paralytic ileus, while a good heart means perforation of a gastric or duodenal ulcer with paralytic ileus. Possibly the transportation to the hospital increased the bleeding and the patient died from internal hemorrhage.

—  
**Dr. Millard F. Cupp, Metamora, Ind.—** The patient's history while full of significance would be enhanced had we information relative to time and food sequence. It is interesting to note that, when the trouble began, the patient had displayed an abnormal appetite by eating a large quantity of watermelon. A few hours later, he had abdominal pain so severe and intractable that only a dose of morphia brought some relief.

The appearance of constipation was to be anticipated, since there is no doubt that violence had been done to the peritoneum and, as is known, peritoneal irritation of any sort is prone to be followed by intractable constipation.

The administration of morphia was, doubtless, greatly responsible for the abdominal swelling in that it increased the effect of arrested peristalsis. Morphia, under similar conditions, should never be administered except to tide the patient over, until more rational procedures can be instituted. In this case there was what is commonly referred to as an "acute surgical abdomen", and it should have been opened at the earliest possible moment.

The lesion was in all probability a perforating duodenal ulcer, resulting in peritoneal shock, intestinal inhibition, collapse and death. Indeed, the signs of approaching collapse were present—high pulse, etc.—when they removed the patient to the hospital.

—  
**Dr. W. W. D. Akers, Hooker, Okla.,** is inclined to accept a ruptured ulcer or appendix as presenting a clinical picture akin to that under discussion. The morphine and possibly a local paresis accounts for the absence of the pain, regurgitation and vomiting stressed by Dr. Jones. An extension of the paralysis to vital centers might be the cause of the sudden death.

The case presents so many possibilities, which must be borne in mind, that one can do no more than think of syphilis, cirrhosis of the liver, sclerosis of the portal vein, carcinoma of the biliary or adjacent organs, with or without suppuration, but producing thrombosis of the portal vein.

Thrombosis of the portal vein may be responsible for sudden dilatation of the splanchnic vein with drop of the arterial tension and general shock. In a typical case we would have abdominal pain, nausea and vomiting, abdominal distention, a weak and fast pulse, and so on, but because these phenomena were not pronounced or present, we are not permitted to rule out the diagnosis of any condition enumerated. The best that can be done now is to speculate on what a postmortem examination would have revealed.

#### Editorial Comment

I am not going to discuss this case critically for two reasons. In the first place, I have already compromised myself, and, in the second place, we are at a great disadvantage from our seminaristic point of view. Let us not forget that the fact that the patient died leads us to a recognition that there was something seriously wrong in the abdomen, a reasoning like *post hoc, ergo propter hoc*.

Anything I could say on the subject would be of purely theoretic value, and the discussions have been so interesting that I can let them speak for themselves.

General Acheson has pointed out the practical side of the problem by asking whether the attending physician had no landmarks to recognize the danger signals. I am sure he had, by which, however, I do not wish to infer that I condemn the physician of deliberate negligence.

I know nothing of the details pertaining to the relation of the physician to this particular

patient. But, I do know something of the psychology that prevails throughout all civilized lands when it comes to the question of major surgery. Unless there is an overwhelming indication for surgery, easily recognized and appreciated by the relatives, consent to any serious operation is not easily given. There is always in the background the hope that there may be a diagnostic error, that less radical measures may accomplish desired results, and, above all, the idea that the operation may prove more serious in consequences than the disease itself.

Diagnostic errors and prognostic errors, especially of abdominal diseases, are not uncommon; otherwise the idea of a seminar would have no *raison d'être*. When it is recalled that even the greatest masters in abdominal surgery seldom make positive diagnoses even of biliary affections, and consider themselves to have satisfied the demands of scientific medicine, by recording some such general diagnostic entry as: "disease of the upper abdomen", leaving space to add post-operative findings, we can only conclude that the symptomatology of gastric, duodenal, biliary, jejunal or pancreatic disease is of a character to mislead and to lead to errors of omission more often than to those of commission.

The cumulative experience of clinicians, affording us a tremendous material for study, justifies us to demand reduction of one error to the minimum, and that is the establishment of surgical indications and contraindications.

There is little justification for failure to recognize when an operation is indicated, but there is a tendency to open the abdomen at the least provocation, which, too, is an error which avenges itself in the long run.

Frankly, Dr. Jones came too late with his operation, but I also doubt whether the result would have been any better had an operation been performed a few hours earlier. Operations of that character should be undertaken before or immediately after the appearance of what is a catastrophe, to prove of benefit. Even if the abdomen had been opened when the attending physician called in counsel, there would have been found such a state of affairs that nothing more than drainage could have been performed, and I doubt whether the patient's life could have been saved.

Dr. Jones is cordially invited to close the discussion.

#### Surgical Exercise No. 4

A young man has suffered from sore throat for the past few days. Gargles prescribed by his physician prove ineffective. The patient complains of dysphagia. You are consulted. On external examination of the fauces, nothing suggestive of throat infection is found. You see, however, that there is edema of the left side and you suspect a deep-seated retropharyngeal abscess.

Requirement: What is the best therapy? What are the dangers of ambulatory treatment? What precautions will you take to guard against danger?

---

**R**EMEMBER that opium masks the symptoms of strangulated gut, appendicitis, and peritonitis, and may deceive both surgeon and patient in gauging the urgency of the case.

**R**EMEMBER it is the atony of long continued obstruction which causes the mortality of colotomy, not the operation itself. Long continued distention is accompanied by paralysis of the coats and vice versa.

**R**EMEMBER, a rising pulse rate of 110 after free action of the bowels and exclusion of typhoid, generally indicates necessity for surgical intervention.

—Bernays: "Golden Rules of Surgery."

# Good Medicine

Let us learn as we go, but not forget what we know  
Conducted by GEORGE H. CANDLER

## The Bottle(d) Baby

YOU certainly ought to be made aware of the fact that after 1950 we shall arrive in bottles!

Sounds startling, but Haldane of the University of Cambridge on the Cam, England, says that the synthetic baby is due on or about that date and who will say that the unimaginative Briton has changed his characteristics and is "spoofing" us? Anyhow, the era of synthetic articles has dawned and I really don't see why synthetic babies shouldn't have a strong appeal—to *some* people. Of course synthetism along this line may be carried entirely too far and while Mama may approve the innovation the "old man" may growl quite considerably. But then he has growled from time immemorial.

We are informed that all but about four percent of the children brought into the world, after 1950, will be products of the laboratory. Allowing for even more slips (and we should be liberal, for the instincts of countless generations cannot be entirely overcome in a few decades) we will have to admit that about 90 percent of the people created in the latter half of this century will be synthetic. The idea holds out great possibilities. Yes, very great inducements; but it has also its disadvantages.

Let us take a family already established along the old lines. Pater and Mater-familias have done their best but not one of their progeny holds out any particular sign of becoming a prodigy. They're just tow-headed little savages who object strongly to soap and water and bring home report cards from school with more F's than E's on them. They can't or won't sing; they never produce anything but discords from the piano and jazz from the phonograph, and they are full of "O Gee's!" and "I'll say so's." They can spend more money than two drunken sailors used to and have about as much thought for the morrow as a fish has feathers.

To such a menage comes an announcement from the "Better Babies Laboratories, Incorporated and under State Supervision." "We

are prepared" the circular states, "to furnish a limited number of super-sons. We have some particularly desirable strains of Poets, Politicians, Policemen and Professional Patriots, ready for immediate delivery. We would also call particular attention to our twin assortments. We can furnish at a reasonable price, Doctors and Danseuses (the services of the latter are in great demand), Clergymen and Clairvoyants (this is a highly recommended combination), Militarists and Milliners (they go very well together), and Bootleggers and Beauties—not the ordinary 'beauty' but the Junoesque 'perfect 36' type, that enabled Al. Jolson to buy the Hawaiian Islands. Workers we have in abundance and also Cooks—they will come in nicely during your old age. Whatever your preference, we can supply you. Our babies are guaranteed to be according to label and may be returned for exchange if unsatisfactory, within one year. N. B. Every baby leaving our Laboratories has been harmonized; none of our patrons have reported a single false note. 'Satisfaction and no squalls' is our Motto."

Now who could censure Pa and Ma if they determine to invest in a guaranteed Bootlegger and Beauty Specialist combination? The male twin will bring comfort to Pa, accumulate wealth for the family, and make influential friends (of the strictly synthetic type), while the female will simply have to sit at her desk and have her first-assistant-secretary (a mere "worker" probably of the "natural" variety) make appointments. She too will acquire Bonds and Bachelors and thus help (we will hope) to make the threatening lean years of the synthetic parents fat and happy.

It is a WONDERFUL picture, and one almost sheds tears as he visions the Laboratory driver coming up to the front door with a couple of sealed tubes and yelling cheerfully, "Here's your Twins—C. O. D." So much less trouble than formerly; so convenient and up-to-date! It must be understood that in 1950 infants in any stage of development will cheerfully be delivered to any ad-

dress. In urgent cases they can be sent by air express. They come with a carefully worked out, chemical tree, with a convenient space left for the ready filling in of available data regarding the new family. This space is usually marked with an ornate "Syn. P." meaning "synthetically produced". Consider the interest which will be manifested in the growth of the new arrivals! The expandable, translucent tubes in which the yet undeveloped babies are delivered can be examined at frequent intervals and progress noted. Ma will exclaim delightedly, "those hands and feet are just the duckiest I ever saw!" Pa, less demonstrative, will remark, "he's getting quite a dome and *some* shoulders; ought to be a good quarterback or mebbe State Senator." To which Ma will retort, "Gee! Don't you ever have a real idea? You know he's guaranteed to be an aeroplanist of the genuine 'breeze-borne' strain; is it likely he'd fall to the level of a Senator?" Pa will then mutter something about women 'always being up in the air' and will leave his domicile to get a synthetic shave from a tube. Maybe something else synthetic—though he fondly believes that it, at least, is real. It isn't, of course—hasn't been for a quarter of a century.

Then consider the Doctor. How much easier his task will be! If he does not care to start a Laboratory of his own, for the purpose of securing a "strictly family trade", all he will have to do is judiciously boost his favorite brand and take orders for immediate or future delivery. To him will come the salesmen of the great Fecundating Factories (or Creatoriums, if they're linguistically as clever then as we are now—in commercial matters) offering inducements to introduce their particular babies. For ultra-fashionables, they will be prepared to supply small editions—*babiettes de luxe*—that can be carried with safety in a sable muff. Probably these will be of the safety-pinless type and refined to such a degree that they will have teeth and smile as soon as they come out of their tubes. That will be wonderful! Especially wonderful however will be the fact that they are nourished synthetically and exude a carefully selected blend of odors combining the Orient and *mille fleurs*! These *enfants parfumé* will of course be very costly. But, think of the advantages!

Everyone can have a baby of some kind in 1950. In fact, it is probable that the still "paternal Government" will see to it that everyone able to get about has at least two. By 1960 it is probable the process of growth

will have been brought entirely under control, so that the expense of up-keep may be lessened. "Self-supporting in five years" will be a great slogan for some enterprising laboratory, as also will be "Why worry; let the kids kick in for you." "Ours produce after the third year", and "The kids with a longer life", also carry a strong appeal.

These synthetic citizens will, of course, not reproduce themselves. They would not think of anything so crude. They will live their lives and leave behind them a still more highly synthetic strain, peculiarly adapted to meet the terrific changes which each decade will bring about.

The danger of the situation, as we can see it, is that some enterprising "Baby House" will get overstocked and let loose a flood of familyless youngsters who will compete seriously with those who have been legitimately bought and brought up to the earning point. Naturally, the Laboratories are not going to have goods "spoil on their hands", and a lot of growing humans running around loose would very seriously upset the routine of the institution. So someone will be able to get an assorted variety at less than job-lot prices. This would open the door wide for some bloated monopolist. He could systematically buy up all the barbers or boot-blacks, cartoonists or writers of *verse libre* stock and in a few years absolutely control these lines of endeavor. That would be a calamity!

Haldane (of Merry England) does not tell us just how these synthetic babies are to be started but I suppose that at first certain well-known biologic laws will have to be adhered to. The ova will be fertilized *in vitro* and growth then proceed in some vitalized solution of mineral salts. Possibly, Vitamine C will be introduced from time to time. Or, if very corpulent specimens are desired, Vitamine A. Such procedure, of course, is really crude at the best and we may reasonably hope that ere the century closes, true synthetization will be possible and the natural parent-cells entirely dispensed with. So, alone, can certain delicate points be cleared up. It would be annoying, to say the least, to buy a baby and have it, as it matured, show a distinct resemblance to, and entirely unnecessary affection for the ice-man or janitor. So, also, would it be embarrassing for the Financial Magnate or Medical Mammoth to have his (synthetic) son and heir hang around some mere saleslady in the great emporium of trade he may chance to visit and insist, when rebuked therefor, that he "just knows" that is

his own mother! The situation might become entirely too complicated if the mother-by-purchase were also present. Women will still be "suspicious things" in 1950. Quite unreasonably so. After a century of synthetization they may change for the better, and again, they may not. Probably NOT. Men, unquestionably, will materially improve. That will not be difficult.

The real serious task that will confront our immediate descendants will be the prevention of any attempt to synthetize the cattle and dairy industries. If there are no naturally-produced calves, there will be no milk. If there is no milk, what are the more common synthetic babies going to be fed upon? Clam bouillon (vitaminized) might work, but the result would inevitably be a cold-blooded, fish-eyed people.

Rather than have such a calamity fall upon the race, let us even now set our faces sternly against any meddling with the national supply of lacteal fluid. Synthetic babies and mamas-by-proxy, yes, if Progress demands it, but man-made milk? Never! That would be getting altogether too far from Nature. Even cocoanut milk, which has been suggested, is open to the most serious objections. The recipients might grow fibre on their "cocos" instead of hair and that would simply ruin the Marcelling and Herpicide industries.

Moreover, we might so gradually revert to the vegetable type! That leads us to remark that our esteemed friend, Voliva, of Zion, Illinois, and certain other earnest endeavorers in New York State, are alike assuring us that the Millenium is close at hand. Voliva, who has the unfortunate delusion that the world is "as flat as a plate", does not say just when the end is to come, but assures us (via the air) that it is almost upon us. The enthusiastic end-runners up in New York, however, want to erect a super-power radio station to warn other people that everything mundane

ceases sometime in August (I think it is August) 1925. Under those circumstances, why worry about the synthetization of anything? I mean, why should these people worry about it any more than you and I should worry about the time of the millenium? Probably they won't—and we shan't.

I very distinctly remember that, when I was a small boy, my nurse went to bed one night with a dozen candles under her pillow. She had been told that there were to be "three days darkness (hence the candles), three days pestilence, and three days famine. At the end of that time all the people over twenty and under ten (she was eighteen) would be dead (I was to die, alas!), and the rest would 'inherit the earth'". They did—such small part of it as they could get. However, the sun rose on time as usual the next morning, and she and her co-believers were quite disappointed. Later I knew people (this was in Canada) who gave away everything they owned and then sat in white robes at East windows to "greet the Lord" when He should come. Ultimately, they had to borrow some clothes and go to work.

The world has been "coming to an end" a dozen times since, and it is probable that next September the "all-over-in-August" people will be telling the rest of the inhabitants of this old earth that they got mixed on their dates. Synthetization, however, may bring, not exactly the millenium, but the end for this race. Carry it just a little too far and "the day and the hour knoweth no man" may mean less than "his father and mother knoweth no man." It would be quite possible to monkey with things until we ourselves become "a little higher than the mineral salts, but a little lower than the sea anemone."

This not being a pleasant thought, I humbly suggest to the Biologists that they "lay off." Anyhow, the old-fashioned kiddie—and all connected with him—is good enough for me!



# Let's Talk it Over

Conducted by All of Us

## Dr. Bryce's Talks

Thrown In By Chance

AS THIS issue of CLINICAL MEDICINE will be the last one before the advent of Christmas, I shall indulge my memory and go back to other days in which my Christmas anticipations were not so roseate nor my pocket a bit plethoric. And yet, after fifty years of varied scenes and a reasonable freedom from financial care, I begin to think that I gained more pleasure in surmounting those earlier struggles than I have since gotten from more mature success, as the world calls it.

It was in my third year of practice, or rather trying to get practice, that we had a very early fall and bleak, cold weather was well started by the middle of November. Collections were very poor and the outlook for a "Merry Christmas", but little over a month off, was gloomy. I had one of the most patient and persistent collectors that ever followed the footsteps of the unwilling and impecunious class upon whom I leaned for sustenance, while studying most rigidly the principles of practical economics. This good soul would tramp all day and return to the office with empty pockets and comfort me with the reminder that it was "a long lane that had no turning," and that he "expected to land something tomorrow."

If fortitude and optimism count for salvation in the other world, I feel sure that my honest old collector now enjoys the reward promised the faithful. However, after a long day of soliciting my most *promising* clients, without melting their hearts to the settling point, he returned almost empty-handed and, seating himself with a rather tired sigh, he said: "Doctor, I must admit it looks decidedly blue and I do not think you will collect any more until after Christmas."

"But, how am I to make out? It is only three weeks before Christmas."

"Well, the Lord will provide", said the dear old optimist.

My office was on an avenue and its front jutted, as it were, into the street, in conse-

quence of the diagonal direction it took and, being in a basement, was entered by four or five descending steps from the street.

While we were discussing the gloomy prospects for turkey and eggnog at the approaching Christmas, we suddenly heard a great uproar and cries of warning, mingled with the clatter of horses' feet and the rumble of wheels. Before we could get out to see what was the matter, the maddened horses, running away with a butcher's wagon, left the avenue and plunged across the open space leading down into my office, turning the wagon upside down and spilling two half drunken and badly frightened German butchers actually into my office. One had a broken collar bone and a dislocated shoulder and the other had a big scalp wound from striking his bullet head against my door frame. They were both so stunned that they were unable to get up and hardly realized what had happened. Between the mean whisky and shock sustained, they were in a very hazy condition and I doubted the wisdom of rendering them any surgical services without being requested by them or some one who knew them, as they might prefer their regular physician when sobered up!

There they lay, moaning and groaning, and rubbing their heads in a vain effort to get their wits to working, when my old friend said:

"Doctor, the Lord has literally thrown these cases into your hands and why in the name of common sense don't you fix them up? It's your only show for Christmas money" (this latter observation in a whisper). The Third Police Station was just across the street from my office and Capt. Charles H. Epps, the officer in charge, came over and assumed charge of them. Being a good friend of mine, he said: "Doctor, render these men the necessary service, they are under arrest for drunkenness and reckless driving, and make out your bill against the city and I'll o.k. it."

One of them, coming out of his stupor,

heard the words "reckless driving" and, turning his eyes on the Captain, said:

"I would like to know yust who vas doing dot reckless drivin, for Fritz und I vas asleep in de bottom of de vagun ven de tam hosses started away."

With the assistance of my old friend, the collector, who had been a veterinary surgeon, we dragged one of them on a lounge and spread the other one on a horse blanket and commenced the work of general repairing. It was in the days of crude surgery and we were not so particular about asepis, so that we were unrestricted in our work. One had about a four-inch scalp wound running from the top of his head down his forehead to his right eyebrow, split wide open to the bone. We rinsed out the office slop-bucket, got some water from the pump in the back yard and washed the blood, horsehair and bits of felt from his old hat out of the cut. While my assistant held him down, I sewed up the wound with five or six stout stitches of flax thread, powdered the whole region freely with iodoform, wrapped his head up like a knighted Klu Klux, and laid him aside to recuperate while I reduced the dislocation and set the fractured clavicle of his companion in misery.

I had a good deal of trouble reducing the backward dislocation of the shoulder and getting that collar bone in apposition; but I finally succeeded in immobilizing and sobering him sufficiently to enable me to send him and his fellow sufferer to their respective homes in an easy-riding hack. As they were leaving, they both requested me to continue in charge of their cases and to visit them next morning.

My old collector and emergency assistant said to me:

"Didn't I tell you the Lord would provide? He simply threw those fellows into your office door. I am sorry for them, but blame glad it happened so close to your office. It looks to me like eggnog and turkey for Christmas."

The old gentleman was very religious and, having much faith in prayer, claimed that these patients were a prompt answer to his petitions, saying:—

"Now, whom do you thank for that good luck?"

"I thank those horses", I told him.

"Well," said the old man. "It certainly does look like they were the Lord's agents".

#### A Memorable Christmas Gift

The mention of Capt. Charles T. Epps' name brings back the memory of an account he gave me concerning his capture, imprisonment, and release from a federal prison by President Lincoln.

Young Epps, at the commencement of the Civil War, was a boy in his 'teens or just reaching his majority when he volunteered in the famous Richmond Light Infantry Blues and went at once to the front. He had not been long in the service before he missed the comfort of a spoon to stir his coffee or eat his soup, and greatly desired an opportunity to capture one from the enemy. But fate decreed otherwise, and it so happened that, one day, while marching along, footsore and weary, he was invited to come into a gentleman's house and take dinner. They had good soup and big spoons and, when our young soldier departed, he forgot to leave his spoon in his bowl but, like the famous Federal General Butler, took a fancy to it and kept it, placing it safely in the inside pocket of his gray jacket over his heart. Before he ever used that spoon again for soup or coffee either, he met the enemy at Hatcher's Run and met a Federal bullet that struck that old spoon square over his heart, which knocked him down and out of breath, but which crumpled the spoon up like an oyster shell and glanced off, wounding him in a less vital spot, and holding him down until the Yanks picked him up and sent him to prison.

He was a tall spare-built fellow, with handsome boyish face and showing the pallor and suffering from prison confinement and coarse food when, one day, a tall, angular, firm-faced man in citizen's clothes entered the prison and slowly walked among the men, nodding kindly to one or another as they caught his twinkling eye. When he came alongside young Epps' cot, he halted and said:

"Howdy, son, what's the reason you are not at home with your mother?"

"Well, I'd like to be there, but it is against the rules of this hotel for a fellow to leave before he settles up."

"Son," said the old gentleman, "wouldn't you like to eat your Christmas dinner at home with your mother?"

"I certainly would, sir."

"What is your name?"

"Charles Epps."

"Where are you from?"

"Richmond, Va."

"What command do you belong to?"

"The Richmond Light Infantry Blues Battalion."

"Would you be willing to take the oath of allegiance to the United States for the privilege of going home to your mother?"

"No sir, I'd die here before I would disgrace my uniform or change my mother's opinion of me," said young Epps.

By this time the young prisoner had be-thought himself of the familiar pictures of President Lincoln and realized that he had expressed himself rather forcibly as a staunch Confederate to the most powerful man on the Union side, and awaited anxiously what Mr. Lincoln's reply would be.

The President said:

"You are on the wrong side, but you are an honorable man and your mother has a son to be proud of. I'll see you again, son", and he left the prison.

Just before Christmas week, Mr. Lincoln again visited the Federal prison, and inquiring of our young friend if he felt well enough to take a little trip, and receiving an affirmative answer, bade him get his effects together and tell his friends goodbye and come on with him. This kind man took him out, gave him some presents, paroled him and, turning him over to an officer, said to him: "Son, I am going to send you home to that good mother as my Christmas present. Goodbye, boy."

President Lincoln represented the Union cause during our unhappy struggle and was looked upon as an enemy to the southern cause; but, when the assassin's bullet struck him down, no truer friend to mankind and the stricken South ever left life's stage than Abraham Lincoln.

### The Doctor's Christmas

As a hard-working doctor who has been long on life's highway, I feel that most of us look upon the approach of this season of joy as one of responsibility and large demands upon us to do so much that we may find beyond our means; for, this is the season when we all would like to gladden the hearts of every one living, if we could.

To the average physician, this feeling is not confined to any one season or time, for he carries it in his heart in his daily work, and, my good brother, I wish to say that you do not need great expenditures to make happy hearts at this or any other time.

I have reason to know, from personal experience, that I have derived under deepest sorrow more happiness and comfort from a cheerful word or a friendly pressure of the hand, or a handful of wild flowers from a child than the most costly present ever given me by those who gave me *value* instead of love and sympathy. Doctor, don't get gloomy or unhappy if you fail to find a full purse on Christmas morning. Send your love to your friends; and, if you wish to make your

old friend of the "Talks" supremely happy, send him your love on a postal.

C. A. BRYCE

516 N. Tenth St., Richmond, Va.

### ANTI-FREEZE MIXTURES

*[Several inquiries have reached this office relative to chemical mixtures calculated to prevent the freezing of the liquid in automobile radiators. The problem was submitted to Dr. E. H. Volwiler, chief chemist of The Abbott Laboratories, who has had extensive technical and practical experience along these lines, and the following note embodies the result of his experiments.—ED.]*

When the weather becomes cold, the radiator of the car should be drained and the water replaced by a solution which will not freeze when allowed to stand. Many formulas have been suggested for the purpose, some of which are inefficient and some actually harmful. Denatured alcohol and water is the best anti-freezing mixture to use, from the standpoint of both efficiency and cost. A certain well-known car manufacturer gives the following percentages to use,

Alcohol.	Freezing Point.
20%	19° F.
30%	10° F.
40%	2° F.
50%	-18° F.

The above figures are conservative, and somewhat less alcohol will protect from freezing when the outside air is at the temperatures given. The following table is frequently given:

Alcohol.	Freezing Point.
20%	20° F.
30%	- 5° F.
40%	-20° F.
50%	-35° F.

The important point, of course, is to test the radiator liquid frequently with a hydrometer, and to replace the alcohol as fast as it is lost by evaporation. The addition of some glycerine, say a quart, delays somewhat the evaporation of the alcohol, and glycerine itself tends to prevent freezing. Glycerine will not evaporate from the radiator, and, therefore, furnishes a safety factor in preventing freezing.

The use of 20% commercial glucose has been recommended as an anti-freezing mixture, but it becomes slushy at 10° F., or higher (although it does not harden even at 6°), and

it is probably not as desirable to use as alcohol.

Salts in general, and calcium chloride, in particular, are corrosive to the metal parts of the radiator and should not be used.

### DRESSING-ROOM SUGGESTIONS

By way of apology in presenting the following items, I may say that these little conveniences are probably not new to the majority of the readers of *CLINICAL MEDICINE*; but, like a great many little things which we sometimes overlook or forget and which sometimes have merit, I am presenting these in hope that they may prove helpful.

1.—We use a Max Wocher eye, ear, nose and throat cabinet, which is so arranged that it has a suction valve on same. Not being satisfied with a suction pump we had for tonsil work, we rigged up two bottles, each with a wide mouth with two holes in the stoppers (which were of live rubber). The jars are connected with a rubber tube. The second hole of one jar holds the tube to which it is connected, directly through a long rubber tube, to the suction valve of the machine. The second tube of the other jar is connected with a rubber tube about 3 feet long. Another tube about 2½ or 3 feet long has the metal sucker on one end and a glass connection link on the other, so it may be sterilized. (See Fig. 1.)

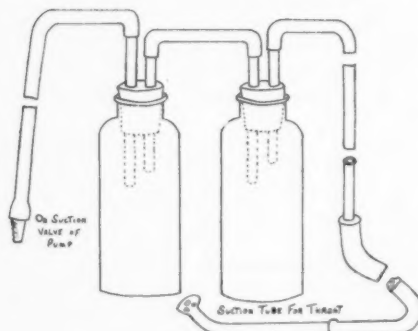


Fig. 1

By using two jars there is no danger of blood and mucus getting into the pump unless, of course; the first jar which connects with the throat sucker, is allowed to fill up to the tube which projects through the stopper. These tubes through the stopper are of nickle-plated metal. The stoppers must fit tightly, as well as all other joints.

2.—On gall-bladder drainage cases, when the

rubber drainage tube is removed about the seventh day, we clean the surface of the abdomen thoroughly with alcohol, and spray the whole abdomen and wound area with liquid (melted) parresine. We have found that this protects the underlying skin from irritation from the bile which is absorbed by the dressings and which lies in contact with the abdomen until changed.

3.—Similar in construction to the apparatus mentioned in 1, but much smaller, is a little suction apparatus for aspirating mucus from the throats of infants. This little apparatus

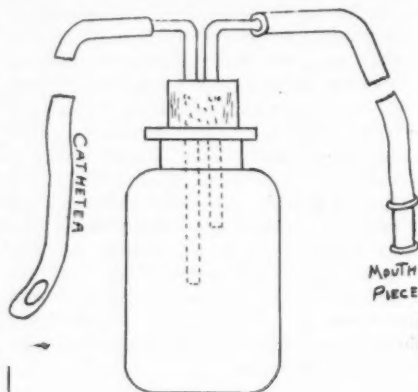


Fig. 2

is made with a small bottle and small tubes, one end made for a mouthpiece, and on the other a No. 12 or 15 soft, rubber catheter, for inserting into the throats of these babies and children who are "choking to death" with saliva, during attacks of bronchitis, croup, coughs, etc. (See Fig. 2).

4.—Small, lacerated or incised wounds may be closed with sterile adhesive, where there is objection to the stitch. By folding the piece of adhesive (cloth sides together) and cutting out sections at a very acute angle, when opening same out flat, we have a narrow diamond-shaped opening. This, when drawn firmly over a wound, approximates the edges and allows drainage.

5.—In closing the abdomen in drainage cases, I use a heavy silkworm gut suture just opposite the drain, inserting it, but not tying at time of closing abdomen. When the tube has been removed and drainage has ceased, the wound will be slightly irritated with sterile gauze ("sandpapering it") and s. w. g. suture will then be drawn up, using either the four-roll or regular tie. This, of course, must not

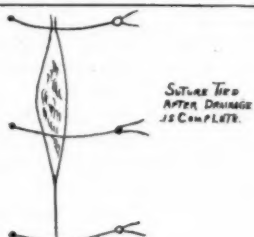
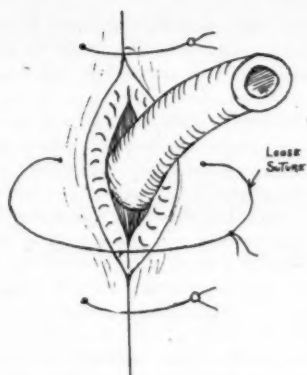


Fig. 3



Fig. 4

be done until drainage has ceased. It makes a much less conspicuous scar, and heals more rapidly. (See Fig. 3).

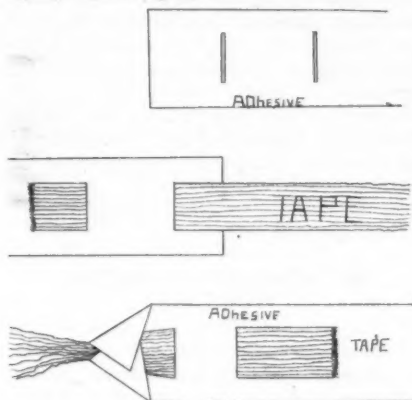


Fig. 5

6.—In lifting patients from the stretcher to the beds, (and in clean cases from operating table to stretcher also), we use a heavy, duck lifting sheet, 1 yard wide and about  $4\frac{1}{2}$  feet long. This is cut at each end for hand-holds. A  $2\frac{1}{2}$ -in. flat (army style) bandage is stitched several inches from the ends, and the ends turned over the bandage, and sewed down all around. This "knot in the handle" keeps the hands from slipping with a heavy patient. (See Fig. 4).

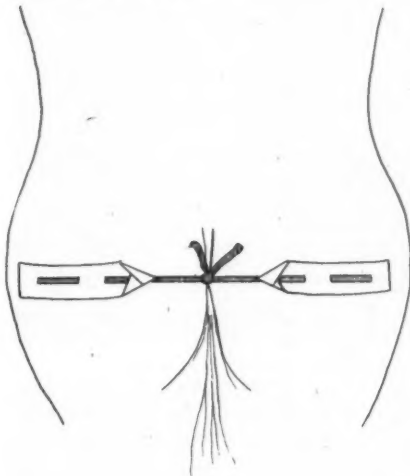


Fig. 6

7.—For prolapse of the anus in babies and infants, we use a piece of adhesive for each side of the buttocks. This is fenestrated two

or three times for the admission of a piece of heavy  $\frac{1}{2}$ -in. tape. The ends of the adhesive are turned over the tape to add strength. The pieces are placed on each buttock and, after reduction of the prolapsed anus, are drawn firmly together. This arrangement allows for movement of bowels, can be kept in place several days, and does not call for constant changing of adhesive as does the old way of plain adhesive strapped all the way across the buttocks. (See Figs. 5 and 6).

P. O CHAUDRON.

Cedartown, Ga

### OF INTEREST TO SOCIAL WORKERS

*Social Welfare Administration* is the name of a new bi-monthly magazine issued by the publishers of *Better Times*, the organ of New York charitable and social work. The new publication is intended for executives and directors of charitable organizations, welfare institutions, and other social agencies throughout the United States and Canada, and is exclusively devoted to their administrative and management problems. It deals with such subjects as office management, record keeping, publicity, money raising, purchasing, printed matter, accounting and committee organization.

George J. Hecht is the Editor of the publication and Gertrude Springer the Managing Editor.

The magazine is the successor of the section of *Better Times* which was known as "Money Raising and Administrative Methods". The subscription price is \$1 a year, or \$2 with *Better Times*. A free sample copy will be sent on request to anyone interested. The publication office is at 100 Gold St., New York.

### GROWTH OF CHICKENS AFFECTED BY ULTRAVIOLET LIGHT

A new page in the romantic history of clear fused quartz was written at the University of Maine on October 14.

The author is Dr. William T. Bovie, professor of biophysics at Harvard University. With the cooperation of President C. C. Little, of the University of Maine, Dr. Bovie has conducted experiments with ultraviolet light which have given to humankind new knowledge of "the throttle which controls living machinery".

Ultraviolet light, natural in the sun, and

produceable through a mercury vapor arc in a quartz lamp, has been found to affect profoundly the rate of growth and development of chickens.

Of what significance is this to the average citizen, great numbers of whom are city-dwellers and therefore only mildly interested in the production of larger and better chickens? Let Dr. Bovie answer the question in his own words: "If the results of these experiments were applicable only to chickens, their importance would be very great. They are quite as applicable to the production of eggs, and more, they are applicable to the raising of our own children, for the disease known as 'rickets,' is a disease of calcium metabolism, which can be cured by the proper exposure to ultraviolet light.

"Statistics show that between 95 percent and 100 percent of the babies raised in our large cities are more or less afflicted with this disease. In its more severe forms the ricketic condition is recognized by the layman as deformed bones of the legs (bowleggedness). In less severe forms the condition may pass quite unnoticed, save for the fact that the children do not have a sturdy structure. Perhaps the condition is not revealed until later in life, as, for example, in an excessively painful child-birth, due to the improper formation in childhood of the bones of the pelvis of the mother".

Clearfused quartz, through which passes freely the health-giving ultraviolet rays screened out by window glass, was recently brought to the world's attention when the Thomson laboratory of the General Electric Company, at Lynn, Massachusetts, announced its commercial production.

The laboratory, under the guidance of Prof. Elihu Thomson and E. R. Berry, had labored for years to achieve an engineering process which permitted the commercial production of this material.

Its applications are apparently to follow fast upon its production. The first window of clear sheet quartz is soon to be installed in Johns Hopkins University. Dr. Bovie has utilized a quartz lamp, which passes the ultraviolet rays from a mercury arc, to investigate the growth rate and development of chickens.

He has found that lack of real sunlight, or lack of an artificial substitute, caused small, under-developed chickens, many of which died. He found that a sturdy race, greater in virility than those raised in open sunlight, were developed with the aid of artificial ultraviolet

radiation. He reasons, however, that possibly an excess of ultraviolet may start a race of dwarf chickens, and points to the sun-baked tropics, where early maturity is found in all races, even the whites who are born and reared in these countries coming to full ma-

turity earlier, usually accompanied by a decrease in stature.

One looks forward only a short time to the common installation of ultraviolet baths, and to the equipment of our city homes with the Cooper Hewitt mercury vapor lamp.

## A Report on the Effect of Ultraviolet Rays on the Growth and Development of Chickens

By W. T. BOVIE, Ph. D.

Professor of Biophysics, Harvard University.

**B**OTH of the chickens shown in Figure 1 were raised in an ordinary greenhouse from which the plants had been removed for this experiment. These chickens received the same food, the same dust baths, had the same amount of room in their pens, and conditions were identical in all other respects except that the larger of the two chickens was exposed fifteen minutes a day to the rays from the quartz mercury-vapor lamp.

As is well known, beside the seven colors of the spectrum—red, orange, yellow, green, blue and violet—sunlight contains another “color” which is invisible to our eyes, and which lies beyond the violet region of the spectrum. This is known as ultraviolet.

### How Pigments Protect Us From Sunburn

Our eyes are insensitive to this ultraviolet color of the solar spectrum, and we are not ordinarily aware of its presence. We are made aware of it, however, when we expose the unpigmented parts of our body to sunlight, for it is the ultraviolet rays of the sun which produce sunburn. Pigment in our skin protects us from these rays so that ordinarily our faces do not become sunburned. There are, however, certain individuals whose skin is not thus protected and these individuals are obliged to protect themselves from the direct rays of the sun.

Ordinary window glass is opaque to these ultraviolet rays. The chickens raised in the greenhouse were therefore protected from the influence of the ultraviolet part of the sunlight. The mercury vapor arc in a quartz lamp is a strong source of light and emits an abundance of ultraviolet. The chickens were exposed to the light of this mercury vapor arc, and from it received the ultraviolet energy which the others did not receive. The object of the experiments was to study the effect of these invisible rays upon the growth and development of chickens. These experiments demonstrated that ultraviolet light is

not only a powerful stimulant to growth and development, but is also a factor without which the chickens could not grow and develop normally.

### Results of Experiments

The results of these experiments are of great economic value because it is a common experience of chicken growers that the death



President Little and Dr. Bovie

rate of chickens at the age of four and five weeks is very high. The experiments show that this death rate can be reduced by supplying ultraviolet light to the chickens.

Chickens receiving this treatment are not only larger but are livelier and more vigorous in every way than are those which did not receive it. The secondary sex characters did not develop in the chickens which were

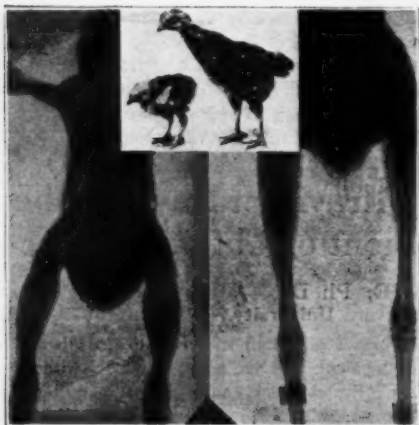


Fig. 1.

deprived of the ultraviolet light. These characters were fully, if not excessively, developed in the chickens which did receive the ultraviolet radiation.

It should be added that the illustrations do not tell the whole story because all of those chickens in the group treated with ultraviolet lived, excepting a few killed by rats. About 75 percent of the chickens from the pen of the smaller chick pictured, that is, those receiving filtered-by-glass sunlight, died from a disease known to chicken-growers as "weak legs". This disease in mankind is called "rickets".

The smaller chicken shown in the picture died a few days after the picture was taken. Most of the chickens in the pens which did not receive ultraviolet were unable to stand on their feet.

Figure 2 shows an x-ray photograph of the smaller chicken shown in Figure 1. It will be noted that the amount of calcium deposited in the leg bones of this chicken is so small that the bone is but little more opaque to the x-rays than is the surrounding tissue. The bone is nearly all cartilage.

Figure 3 is an x-ray photograph of the larger chicken shown in Figure 1. Note that the bone contains a great deal more calcium and phosphorous salts than do the bones of the smaller chickens. This is shown by their greater opacity.

These two photographs demonstrate in a very clear manner that, not only is there a difference in the growth rate, in the weight and in the development of the secondary sex characters between the chickens receiving the ultraviolet light and those deprived of it, but



Fig. 2

also that, those chickens deprived of the ultraviolet light are unable to properly deposit the strength-producing salts in their bones. A chemical analysis of the blood of the chickens living in the absence of ultraviolet light shows that while there is an abundance of bone-forming salts contained in the blood, for some reason, these salts do not become deposited on the bones in a normal manner.

A third x-ray photograph was made of a chicken of the same age as those shown in Figure 1. The chickens of this group were given the same food as the first two groups, but were permitted to run in a yard outside of the greenhouse, so that they received the ultraviolet rays from natural sunlight.

The chickens in this lot were almost as large as those raised entirely inside the greenhouse and which were treated fifteen minutes daily with the quartz ultraviolet lamp.

An x-ray comparison of the bones of these two chickens shows a greater maturity of the bones in the chicken raised with artificial ultraviolet radiation. It would seem, therefore, that a fifteen minute exposure to artificial ultraviolet light is more efficient in producing and maturing bone growth than is a continuous exposure—weather permitting—to sunlight.

#### Further Experiments Necessary

This surprisingly high efficiency of the ar-

tial source of ultraviolet indicates it will be necessary to conduct further experiments to determine whether a longer exposure would be detrimental to the chickens and cause the bones to become mature before they had reached normal length. In other words, further experiments are necessary to determine if an excess of ultraviolet light will produce dwarfed chickens.

A contemplation of the results of these experiments must convince one of their tremendous importance. They show clearly that in the invisible energies of ultraviolet light we have a controllable force which can accelerate the growth and development of living things.

We have seen that, by adding light to the rations of our chickens, we are able to profoundly alter their rate of growth and development. This fact could not be discovered by any amount of chemical analysis of the food.

It is of the very greatest importance that we investigate straightway and thoroughly any mechanism by which we can control the rate of physiological processes, for we have, here, at last, a throttle by means of which we can control the rate at which living machinery works.

The formation of bones involves a set of chemical changes which the physiologist calls *calcium metabolism*. There are a great many diseases such as rickets, otosclerosis (hardening of the eardrum) and osteomalacia (a chronic progressive adult disease characterized by softening of bones) which are all diseases of calcium metabolism. It is known that these diseases are in some way connected with the endocrine system, just as is the development of secondary sex characters, and it is undoubtedly through the endocrine system, in part at least, that the ultraviolet light exerts its beneficial influence.

If the results of these experiments were applicable only to chickens, their importance would be very great. They are quite as applicable to the production of eggs, and more still, they are applicable to the raising of our own children; for the disease known as "rickets" is a disease of calcium metabolism which can be cured by proper exposure to ultraviolet light.

The disease records of every city show that from ninety-seven to one hundred percent of all the babies living in the northern countries, where it is necessary to keep children indoors and to use window glass to shut out the cold, have "rickets" when examined in the spring. Undoubtedly, many other physio-

logical processes are involved. We may expect to find the same factors influencing the growth rate of children as have been found in this experiment with the chickens.

In this connection it is interesting to note that the secondary sex characters develop early in people living in tropical countries, and also that in general these people are of shorter stature and that their bones mature earlier than do those of persons living in higher latitudes.

These experiments were conducted at the State University of Maine, at Orono, in cooperation with President C. G. Little, of the University.

### AMERICAN RED CROSS

The need of Red Cross assistance to ex-service men and their families is as pressing to-day as it was immediately after the end of the war.

Through recent laws enacted, the government now accepts responsibility for men whose tuberculous or neuro-psychiatric conditions appear before January 1925, instead of limiting the time to three years after discharge. For this reason a larger number of men are being hospitalized. More than half of these men have dependent families requiring Red Cross assistance.

Service to disabled veterans cost the national Red Cross \$1,708,000 and the Red Cross chapters \$2,000,000 for twelve months ending June 1924. The Chicago Chapter, during twelve months, spent an average of \$1,000 a week for food, fuel, rent and clothing for disabled veterans and their families.

Men in hospitals were given clothing and comforts, besides money for laundry and insurance, until they received their government compensation.

Red Cross workers filed original claims for compensation and secured additional affidavits to strengthen claims which had been disallowed. As a result of their efforts, thousands and thousands of dollars compensation have come through to the men.

Psychiatric workers cared for more than a thousand mental cases during the past year. Many were examined and sent to hospitals, and others were given special care in their homes.

The practical and economical way of helping the disabled ex-service man is to enroll in the Red Cross. It is the agency chartered by Congress to act as a medium of communica-

tion between the people of the United States and their army and navy; and it is the channel through which the people of the United States express their gratitude to the disabled men.

### CHRISTIAN SCIENCE REPLIES

Since you have given circulation, in the "Let's Talk It Over" columns of your November issue, to an article headed "Christian Science Again", which misrepresents our religion, it will manifestly be fair for you to give equal publicity to this comment inasmuch as I prepared the correction printed in your September issue which prompted the incorrect remarks under consideration.

Our critic, a doctor of medicine, makes a very mistaken assertion when he says "where there is any organic trouble, there is no healing by the so-called force of Christian Science", I assume the term "so-called force" as used by the doctor alludes to prayer. The Scriptures teach us that prayer is most effectual to heal *when correctly applied* [italics are ours.—Ed.] Dr. Richard S. Cabot of Boston, member of the Massachusetts General Hospital, evidently thinks it is of inestimable value as a healing agency; for, in a recent interview, he said: "I believe that prayer does cure disease. Healing comes to some individuals directly through prayer, I am sure. I use it in my practice and rely on it today more often than on medicine".

Many witnesses to this healing power of God, made practical through prayer in Christian Science, include those who have been healed of so-called organic diseases after such diseases have been diagnosed by one or more reputable physicians. Authenticated cases of such healings, many pronounced incurable, are published weekly and monthly in the Christian Science periodicals, and these testimonies are available to anyone who desires to make an honest investigation. Summarizing his report of a failure to heal through Christian Science treatment, the critic inquires "when will folks cease to be led by such foolishness?" This failure, as reported in the foregoing article, occurred fifteen years ago, as evidence at hand proves. Such a lapse of time places the story beyond the conviction of current news and well within the realm of conjecture, where it does not in any wise prove that Christian Science is "foolish" or that it fails to heal the sick. If the practice of medicine proved infallible in every case, kindly comparison might be admissible; but, for a physician to deride a

religion because such a religion does not meet with his approval does not dignify the medical profession. Christian Science only asks to be known by its fruits of righteousness. Such fruits more than satisfy its adherents. Because Christian Science is admitted by those who understand it to be Christian, and is proving itself to be exact Science, it will continue to furnish an increasing measure of health and happiness to those who obey its precepts and practice understandingly.

HUGH STUART CAMPBELL.

Chicago, Ill.

[While we are by no means Christian Scientists, we feel that every man or group of men is entitled to a square deal, which, it appears, was not quite given in the November number of CLINICAL MEDICINE, where Doctor Humphrey, on page 802, left out a word (inadvertantly, no doubt) in quoting Mr. Campbell's letter in the September number, which entirely changed the sense of the statement.

We physicians are apt, very properly, to feel that, having had special training in the care of the sick, we should have first call upon such ministrations, but I wonder how many of us have ever taken the trouble to find out exactly what the Christian Scientists (and also the various other irregular practitioners) really *do* teach and accomplish before airing our views in public or in private.

It may be that Christian Science is all wrong (we do not feel sufficiently well-informed to pass final judgment, one way or the other); but if, perchance, there is some good in it, would we not do well to find out what it is and use it?

In any case, let us try to be as charitable toward the mistakes of others as we would want them to be toward our mistakes.

While we are glad to give space to this letter, it will not be possible to carry this discussion further, as our columns are needed for matter of more immediate practical value to our readers.—Ed.]

### MEDICAL NEWS

#### The American College of Radiologists and Physiotheraputists

The above-named society held its third annual meeting in Chicago, November 12, 13 and 14, 1924, and our reporter attended some of the sessions and inspected the exhibits.

Having been somewhat out of touch with the rapid progress which has been made in the scientific development of these specialties

in recent years, he was greatly surprised to learn what is actually being done.

Dr. H. W. Grote, of Bloomington, Ill., read a valuable paper on "Electricity in Pelvic Diseases of Women," in which he stated that, while much remains to be learned regarding the so-called trophic centers, they undoubtedly exist, and any influence which can vary the blood supply of a tissue can affect its physiology and pathology. Among such influences electricity is prominent.

The pelvic diseases of women can be grouped into three general classes:

- 1.—Those due to faulty development.
- 2.—Those of psychic or neurotic origin.
- 3.—Inflammatory conditions.

Among the diseases in which electrical treatments have produced gratifying results, he mentioned amenorrhea (infantile type); dysmenorrhea (obstructive type); endometritis, chronic; subinvolution; malpositions and chronic parauterine inflammations. This form of treatment is contraindicated in acute suppurations, ectopic pregnancy and cystic ovaries.

He emphasized the point that a detailed and accurate diagnosis of conditions present is more imperative when electricity is to be used in treatment than when one resorts to surgery.

Dr. Leo C. Donnelly, of Detroit, spoke on the methods and uses of ultraviolet radiations.

He emphasized the difference in the energy developed by the water-cooled lamps, whose effects are strongly germicidal, but have little penetration (this property is, however, increased by impregnating the tissues with some of the aniline dyes, such as acriflavine or brilliant green), and those obtained by the use of the air-cooled lamps, which produce marked stimulation of biological processes. It is the latter form of treatment which is used in connection with the subject of calcium metabolism.

Our reporter carries on his forearm conclusive evidence that *real energy* is developed by the water-cooled lamps, in the form of a circumscribed area of rather severe "sunburn", produced by a ten-second exposure to the rays from one of these lamps.

Many other valuable and practical papers were read and intelligently discussed.

The variety and perfection of the apparatus exhibited at the meeting were very impressive.

CLINICAL MEDICINE has the promise of a paper on "Ultraviolet Radiation in General Practice", by Dr. A. J. Pacini, of Chicago, and one on "Electrocoagulation in Carbu-

cles", by Dr. David Willmoth, of Louisville. Both these men are authorities on these subjects.

### OUTBREAK OF PNEUMONIC PLAGUE IN LOS ANGELES

On November 1, a report was received from the Service representative stationed in Los Angeles, Calif., to the effect that there had been 18 cases of pneumonic plague with 10 deaths in that city since October 19, 1924, and that there were 3 additional suspicious cases under observation.

The telegram stated that the cases had been hospitalized and that contacts were being kept under observation under guard. Immediately upon the receipt of the report of this outbreak, Senior Surgeon J. C. Perry and Surgeon N. E. Wayson, U. S. P. H. S., were ordered to proceed to Los Angeles to represent the service and cooperate with the state and city health authorities in inaugurating such measures as might be found necessary. Due notice of existing conditions has been given.—*Public Health Reports*, Nov. 7, 1924.

### ENDOCRINE CLINIC ESTABLISHED

On November 10, there occurred in Glendale, Calif., the formal opening of the Harrower Foundation Clinic, established for the intensive study of the clinical aspects of Endocrinology, using every known instrument of precision in collecting and interpreting clinical data.

This clinic is open to all reputable physicians who may bring or send their patients for a careful study of the various cases.

This clinic should do much toward clearing up the scientific status of clinical endocrinology.

### AIM AND PRINCIPLES OF THE AMERICAN STOMATOLOGICAL ASSOCIATION

The American Stomatological Association at the last meeting, held on October 9, 1924, in New York City, adopted the following principles of Stomatology, which are in conformity with the holdings of the International Stomatological Association.

1. Stomatology signifies that branch of medical science which has for its purpose the study and treatment of diseases of the mouth.

2. Stomatology deals with all problems concerning the normal and abnormal conditions

of the mouth and its adnexa, and with the surgical and medicinal treatment of oral disease.

3. Stomatology, so defined, is the only correct designation of the specialty of medicine devoted to the care of the mouth and teeth, including dental prosthesis.

4. Stomatology embraces odontology (dentistry) or the study of the normal and pathological conditions of the dental apparatus.

The following officers were elected to carry on the program of the Association for the year 1924-1925:

#### *Honorary Members*

Prof. Dr. H. C. Greve, University of Erlangen, Bavaria, Germany.

Prof. Dr. R. Nogue, School of Stomatology, Paris, France.

Prof. Dr. A. Piperno, Royal University of Medicine, Rome, Italy.

Dr. J. Sim Wallace, King's College Hospital, London, England.

#### *Officers*

*President:* Homer E. Smith, M. D., F. A. C. S., New York City.

*First Vice-President:* Oliver T. Osborne, M. A., M. D., F. A. C. P., New Haven, Conn.

*Second Vice-President:* N. Philip Norman, M. D., New York City.

*Treasurer:* Robert H. Rose, A. B., M. D., New York City.

*Secretary:* Alfred Asgis, Ss. B., D. D. S., New York City.

*Corresponding Secretary:* E. B. Hardisty, A. B., New York City.

#### *Committees*

*Clinical Stomatology:* Joseph Colt Bloodgood, M. D., Chairman, Baltimore.

*Curriculum:* G. Reese Satterlee, M. A., M. D., Chairman, New York City.

*Mouth Hygiene:* Harold DeW. Cross, M. D., Chairman, Boston.

*Nomenclature:* Louis Ottofy, M. D., D. D. S., Chairman, Chicago.

*Membership:* John L. Kelly, D. M. D., Chairman, New York City.

*Publication:* Irving W. Voorheese, M. S., M. D., Chairman, New York City.

### DIETARY HINT IN GOITER

*The Dearborn Independent* for September 20, 1924, prints a note to the effect that crabs, lobsters, shrimp, oysters, clams, and other crustaceans and mollusks are both a preventive and a cure for goiter, according to the executive secretary of the United States Fisheries

Association. High iodine content in these classes of marine inhabitants renders them particularly valuable for this treatment.

### LITERARY NOTE

Dr. E. A. Nash, of Peterson, Iowa, who has contributed to CLINICAL MEDICINE from time to time, is publishing a volume of his verses under the title, "Random Rhymes and Poems for Home Folks." The printers are Stearns Bros. & Co., of Chicago.

*(Concluded from page 851)*

of intelligence, the same successes, and the same failures are happening in his life, as in theirs. He is able to see himself in each one of them, as he sympathetically contemplates them—after he puts himself in the right perspective.

Success and prosperity came to me, finally, as my good friend Caldwell had said they would come. I remained in the village six years and one month, and, instead of my boastful colleague succeeding in his purpose to drive me from the village within six months, I saw the day, near the close of my sixth year of practice, when the solemn words, "Dust to dust," were spoken over his open grave.

So, my fellow practitioner, what is man but an integral part of God's magnificent whole? What does it profit you and me, if we gain the whole world and then lose our God-given possession, goodness and truth, at the end of life? Truly, it is far better that you and I should carry our brother of the profession with us up the broad highway of success rather than push him over the embankment of competition into the dark waters of utter oblivion.

### NEAR EAST RELIEF

Men prominent in every profession, trade and industry are included in the committee now making plans for an appropriate observance of Golden Rule Week in the Chicago district beginning December 8. December 7 will be observed throughout the United States and by twenty-three other nations as Golden Rule Sunday as a reminder of the urgency of aid for the orphaned children in the Bible Lands and the 100,000 little ones among the refugees in Greece following deportation from Turkey. The Near East Relief is attempting to provide at least one meal a day for the

refugee children in addition to giving full care to the 40,000 children in its own orphanages in Persia, Armenia, Palestine, Syria and Anatolia.

Committees in each trade, industry and profession will ask for funds for this cause during the week of December 8, and the goal set in the Chicago district is \$300,000. Under the Near East Relief plan it is possible to provide a substantial meal for the needy children overseas at a cost of about four cents.

The committee in charge of the Division of Surgeons, Physicians, Dentists, Oculists and Optometrists is headed by Dr. Martin M. Ritter, 25 East Washington Street, Chicago.

### AMERICA'S DRUG TRADE

America's drug trade has reached a total volume of about \$800,000,000, it is estimated in a review prepared by a special committee of the National Wholesale Druggists' Association, and made public by Secretary Charles Harold Waterbury of New York.

The number of proprietary articles sold now aggregates more than 50,000. In 1871, a leading Chicago wholesale house catalogued only 825 items proprietary in character. About ten years later, 1880, a St. Louis jobber catalogued 2,699 proprietary medicines; in 1883 a New York house listed 4,969 proprietaries; while in 1906 and 1907 the same house listed 17,780 such items. In 1916, the number of such items was 38,143.—*Drug Trade Bureau of Public Information.*

### THE IMPORTANCE OF CORRECT DIAGNOSIS IN INJURIES TO THE SKULL

Concussion of the brain may be due to force directly applied by a blow upon the head or, indirectly, may follow violent alighting upon the feet after a fall from a height.

The patient is stunned, is partially insensible, lies motionless, pale and cold. Insensibility is not complete for questions will be answered, and pain elicited by pinching; respiration is feeble, the pulse is rapid, small and fluttering; the pupils do not react to light and are sometimes contracted and sometimes dilated; nausea and vomiting often occur. After reaction, the skin is hot and dry, the face flushed, eyes bloodshot, pain severe especially in the head; restlessness and delirium usually are present.

Fracture of the skull may be simple, affect-

ing the external plate only. Such cases are of little importance and nature soon repairs the injury. A depressed fracture, however, should be carefully differentiated from a fracture of the external plate alone.

Danger arises from the complications of concussion—extravasation of blood and inflammation.

Compression may be due to hemorrhage, depression of bone or the formation of pus. The symptoms which characterize it are slow, laborious, stertorous breathing; a full, regular, slow pulse and complete loss of consciousness and sensibility; pupils dilated and insensible to light; the skin moist and warm; the sphincters often relaxed.

Conditions which justify the operation of trephining: (1) simple fracture with depression; (2) compound fracture with depression, with or without symptoms of compression; (3) punctured fracture; (4) when the symptoms are very urgent and the surgeon has good reason to believe that symptoms of compression indicate blood or pus underneath the cranium and above the duramater, or fracture with depression of the inner table.

Some months ago, I was called in consultation in the case of a boy of fifteen years who had been injured by his horse falling with him.

The physician in charge of the case had diagnosed concussion; but, as the patient had remained in a comatose condition for over forty-eight hours, the parents became anxious and insisted upon a consultation.

I found the boy comatose; pulse full and slow; labored respiration; reflexes unresponsive. Examining the eyes, I found the right pupil widely dilated, the left pupil contracted to a pin point. There was a bruise about the center of the right frontal bone and I detected some depression under the bruise.

I diagnosed fracture with depression and symptoms of compression about the optic commissure, and suggested operation.

The attending physician did not agree with me and, on submitting our several conclusions to the parents, they decided to place the case in my hands.

Seventy-two hours after the injury, accompanied by the father, I took the boy, still in a comatose condition, to the P. & S. hospital in San Antonio. The patient was examined by Dr. S. P. Cunningham, Dr. Goodwin and another surgeon, all of whom confirmed my diagnosis and approved my suggestion of operation.

Dr. Cunningham trephined and removed about a tablespoonful of clotted blood from over the optic commissure. Immediately, upon recovery from the effects of the anesthetic, the patient was intelligently conscious, and talked with his father. He made a rapid and uneventful recovery. At this time, one and a half years after the accident, the boy is reported by his teacher to be well up with his class, and he enjoys robust health.

W. T. THACKERAY.

Fowlerton, Texas.

#### NOTED SUCCESS ATTENDS NEW HOOKWORM REMEDY

Since the discovery, about three years ago, by Dr. Maurice C. Hall of the United States Department of Agriculture, of the usefulness of carbon tetrachloride, a cheap and common chemical, in the treatment of hookworm disease in domestic animals, members of the medical profession in various parts of the world have tried it on human patients with great success. A recent report by Science Service, based on the records of the Rockefeller Foundation, shows that about one and a half million persons have been treated, most of them in tropical or sub-tropical countries, but also many in the temperate zones.

A few hundred dollars and thirty dogs represent the costs of the investigations in the Bureau of Animal Industry which resulted in the discovery of the superiority of this chemical in the treatment of this age-old parasite, yet, without considering the increase in human comfort and the saving of human lives, the return has probably been enormous. It has been used in many parts of this country where the parasite exists, but some of the most conspicuous successes have been reported by medical men in distant countries.

Only recently Dr. George Giglioli, medical officer of a British Guiana mining company engaged in mining bauxite, an aluminum ore, reported his experience in treating the workmen and people of the community with carbon tetrachloride after various other treatments had been used with indifferent success. The new treatment "immediately proved infinitely more satisfactory from every point of view",

he said in a statement to the Royal Society of Tropical Medicine. Without any preparation the miners were treated while hard at work under a broiling sun. Ill effects from the dosage were so few that only 11 men were kept away from work at all and these for a total of less than 60 hours. The condition of the miners improved almost immediately, one evidence of which was to be found in a great decrease in hospital cases.

Although the manager of the mine does not give all the credit for the ensuing increase in ore production to the hookworm treatment, he did not hesitate to give it much of the credit. The mines had been in operation for 8 months and the production of ore per day per man averaged 5 tons, with no increase for 5 months preceding the treatment. For 2 months following the treatment there was no increase, but from that time on it began going up until 5 months after the treatment the average output per man per day was 6¾ tons, an increase of 35 percent.

This increase in efficiency, which was not explained in any other way in spite of the manager's reluctance to give the medical treatment full credit, was brought about at a cost so low as to seem almost ridiculous. The expense for giving 1,334 treatments, some of them retreatments, was \$13.44, or slightly more than one cent a treatment.

This is a rather conspicuous example of how far-reaching may be the effects of some of the investigations which originally had for their principal object the improvement in health of domestic animals.

In giving carbon tetrachloride, it is well for the physician to remember that fatalities occasionally attend its use.

Phelps and Hu, in the *J. A. M. A.* for April 19, 1924 (v. 82, pp. 1254-56), report two fatal human cases and the results of a series of animal experiments, and conclude that the untoward symptoms following the use of this drug are probably due to central necrosis of the liver.—Ed.

#### AN OPEN LOCATION

White Rock, S. Dak., is in need of a doctor. Communicate with White Rock Drug Co.

# Let Us Play

Conducted by All of Us

## Mexico

NOW that the time for hunting has rolled around once more, and some of you are debating the question as to where you are going to do said hunting, why not make a trip to the land of Moctezuma, (we do not all have horns nor tote six guns), where you can have any climate you desire, and all the hunting you wish?

Now that the S. P. de Mexico has good train service into Tepic, and you can get from Tepic into Guadalajara (State of Jalisco) by auto and horse-back, this trip will give you some of the most beautiful scenery in the world.

If you want some fine deer and mountain lion shooting with a few lobos thrown in for extra excitement, make a stop over at Yxtlan del Rio, State of Nayarit, and take a two-days' horse-back trip north of the Santiago river; there you can go up to about eight thousand feet, find all the mountain lions, lobos (wolf), deer (white tails) and turkey that you are looking for, with plenty of small game thrown in for good measure. As I have made this trip, and am now located on the south bank of the Santiago, I know what I'm talking about. And when I say that I consider the trip across the Barancas one of the most wonderful in the world for beautiful scenery, I believe that, inasmuch as I have been from Calgary, north, to Guatemala, south, on the North American continent, and in every state of the U. S. from New York west, with five trips to Europe, three years in the Philippines and a hike from Shanghai to Peking, China, thrown in for good luck, I am in a position to estimate the beauties of the Barancas.

Then there is the trip by rail from Guadalajara to Colima which shows you a very beautiful bit of country. While Colima is very old, it is also a very pretty city, and has a little park that is second to none, in any country; and, if you have high aspirations, there is Mt. Colima (14,970 feet) close by. The climate in the States of Colima, Jalisco

and Nayarit, is just about all that any ordinary person could ask for; in fact, it is the climate that one of our western states claims to have, minus the fog and a few other disagreeable conditions.

A trip from Guadalajara to Mexico takes you through a rich agricultural section, where some of the finest strawberries in the world grow and ripen 365 days out of every year. Personally, I prefer the city of Mexico to either Paris or London, but, of course, that is a matter of individual preference.

Then comes the trip from Mexico to Vera Cruz, which is really wonderful.

Yes, I know some of you birds, will say: "Oh! they kill people down in Mexico." Quite true. They do this, that and the other, —all quite true. But, show me a city or town in the good old U. S. A. where a man can take a bag of gold and go three blocks with it. I doubt if he would go one block in New Orleans, Chicago, or little old New York; yet, to see men carrying bags of money in Colima, Guadalajara, Mexico or even in Tampico is a daily occurrence. And, while there is crime in Mexico, it is *punished*. I see by the papers and magazines that reach me that there is also crime in the U. S. and that it is not punished.

There has never been in the history of the Republic of Mexico a parallel to the case of Leopold and Loeb, and I truly believe that, should such a case occur, the trial judge would not hand out a mere life sentence and take chances on some one else also being sympathetic and issuing a pardon. In all the years that I have been in Mexico, I have never heard of a case of rape, and I'm extremely sorry that I can't say as much for the south-land that I love.

In conclusion, if some of you people would make a visit to this land of wonderful opportunities, and realize that it was *Mexico* and accept the Mexican as he is, and not try the "proverbial North American shenanagen" you would find that, next to America, Mexico

is the greatest country in the world. Last but not least, I like the country and the people, or I would not stay in it.

I. P. ISRAEL.

La Quemada, Jal.

[The Editor has spent three years of his life in the Republic of Mexico, and wishes to heartily second the statements made above.

The man who cares more for the "big Out-

doors" than he does for the "White Lights" (and I believe there are many in our profession) will get more solid satisfaction and more thrills out of a month spent in visiting our southern neighbor than he would out of two months in Europe, provided, always, as Israel suggests, he remembers that it is Mexico, and that the Mexicans are human beings—and that he does not leave his "company manners" at home.—Ed.]

## THE FROG

*What a wonderful bird the frog are.*

*When he stand, he sit.*

*When he hop he fly,*

ALMOST.

*He ain't got no sense,*

HARDLY.

*He ain't got no tail*

EITHER.

*When he sit down he sit on*

*What he ain't got*

ALMOST.

—Fischer's Magazine.

# What Others are Doing

## MILK INJECTIONS IN EYE DISEASES

May (*Jour. Kans. Med. Soc.*, Oct. 1924) reviews the experience of other users of milk injections in eye diseases and recounts a number of his own cases from a total of more than eighty treated during the last eighteen months.

The treatment, he concludes, is of immense value in iritis and iridocyclitis as well as some forms of keratitis; in short, in practically all those acute diseases which are limited to the anterior segment of the globe. It is above all beneficial in corneal ulcer of nearly all types, particularly if seen early.

Cow's milk, boiled for ten minutes, was used, although it is suggested that the boiling process be repeated on two successive days in order to destroy tetanus or anthrax spores if present.

"The first adult dose is 5 Cc.; the following day 7½ Cc.; omit one day; then 10 Cc., and the following day 10 Cc., which completes the treatment in most cases. The dosage is not an arbitrary thing, but was worked out by Dr. P. M. Krall and Dr. May and seems suitable. Others give an initial dose of 10 Cc., repeated for a total of four doses, while Amat of Madrid, who has used it in more than 3,000 cases, says the adult dose is 4 Cc. The only variation we make in the dosage is dependent upon the amount of reaction obtained. When a severe reaction follows the initial injection, none is given the following day or it is discontinued. The first case I sensitized by waiting too long between doses. No untoward results were obtained, but a chill, lasting fourteen hours, with an exceedingly high temperature, at least aroused our curiosity."

The injection should be made into the muscular structures, the gluteal and scapular region having the preference. So far, there have been no local reactions except soreness, and no abscesses.

One of the interesting features of this treatment is the great relief from pain which followed within a few hours from the first injection in nearly all cases. This is also borne

out by men in other lines of medical practice, for instance, in epididymitis, pneumonia, pleurisy, acute articular rheumatism, etc.

Darier of Paris says that milk injections, although giving some negative results, have given the greatest satisfaction, and many times in cases that have been resistant to all other forms of medication. His adult dose ranges from 3 to 5 Cc.

Patton, of Omaha, summarizing the experiences of 20 leading investigators, found every case of iritis and iridocyclitis cured. In corneal infections of various forms, of 9 reporting, all except one noted improvement. The simple ulcers seemed to respond more favorably than the violent seriginous types. In gonorrheal conjunctivitis, 4 report very favorable results, 1 negative and one reports 3 cures, 4 failures. One case of hyalitis with vision 20/200 improved to nearly normal. In phlyctenular keratoconjunctivitis, benefit in one-half the cases. In single cases of orbital cellulitis, dacryocystitis and intraocular hemorrhage, marked improvement. Two cases of prompt relief of synechiae, which has resisted thorough use of atropine. Leucic, tuberculous and trachomatous conditions were practically unaffected.

Practically all administered the treatment intramuscularly. Personally he had used milk injections in 19 cases, in some of which there was no apparent benefit, while in others it seemed as if some improvement could be ascribed to milk.

Liebermann, of Berlin, says there has never been a case of ulceration in gonorrheal ophthalmia where the case was presented with the cornea intact, while ulcers already existing have been healed; that the secretion usually ceases the first day and certainly after the second injection; and he has treated 1,000 cases. He considers omission of this treatment a neglect of duty.

Amat, of Madrid, who has given injections of sterilized milk in 3,000 cases, says that pain is immediately arrested. Corneal changes may be observed in 5 or 6 hours after injection. The bactericidal effect is due to the milk proteins. The adult dose is 4 Cc.; from 14 to 20 years, 3 Cc.; 10 to 15, 2 Cc.; 5 to 10

years, 1.5 Cc.; 3 to 5, 1 Cc.; 1 to 3, 0.5 Cc.; under one year, 0.25 Cc. These doses should not be exceeded. Injections should be made on alternate days. Children and the aged are very susceptible. Three to six injections suffice; if these do not produce results others will be useless.

Milk has been successful in preventing post-operative infections, for example, in cataract cases; here it is superior to mercury cyanide. The intrascapular region, he finds, is the most tolerant, the abdominal wall the most sensitive.

[The Editor has had personal experience in the use of this form of treatment in several cases, and, so far as such small experience goes, it fully confirms the above-noted results.

Since sterilized solutions of the milk proteins in ampoules are now available for injection, it would seem best to use one of these; lactigen, for example.—Ed.]

#### MILK PROTEIN INJECTIONS IN SURGERY

De Courcy (*Amer. Jour. of Surg.*, Aug. 1924) suggests the injection of milk protein in operations ordinarily requiring ligation of the thyroid arteries, believing the procedure to be decidedly in the interest of the patient. Says he:

"For some time in our clinic we have been attempting to desensitize our patients before operation with injections of non-specific proteins, with a view of lessening postoperative reactions; that is, we would begin by injecting 5 Cc. of toxin-free milk into the gluteal muscles, and gradually increase the amount up to 10 Cc. over a period of a few weeks until there was no resultant reaction. Usually, the first and second injections would cause a severe reaction (chill, rise in temperature, etc.), the third usually mild, and the fourth none. The operation is then performed and postoperative reactions and shock have been nil in a large group of cases."

Nonspecific protein immunization, he goes on to say, is by no means new in principle. It has been used with satisfaction in such diseases as gonorrheal arthritis, influenza, pneumonia, puerperal sepsis, typhoid fever, etc., and it accounts for several cures of cancer with serum treatment reported in the literature. Up to the time (1916) that Schmidt and Saxl introduced intramuscular injections of milk however, nonspecific therapy was considered dangerous; at this time typhoid vaccine was generally used. The work of Schmidt

and Saxl was quickly followed by that of Bruch, Miller and Weiss who began using 5 to 10 Cc. of sterile, toxin-free milk intraglutely. They showed that this treatment is rarely followed by a chill; although one may occur, but it is followed in six to eight hours by a typical rise of temperature which subsides in twenty-four hours. By this method there is relatively little danger of anaphylactic shock. Monguzzi, in 1920, used this method in 19 cases and it proved satisfactory in every instance. He claims that, while the nonspecific method is not a substitute for the specific, both courses should be used.

Instead of employing milk as such, it being inconvenient to sterilize it and more or less problematical whether sterilization has actually been accomplished, it seems more desirable to use the ready-to-inject ampule solutions which are now available to physicians.

#### ANTICIPATING ARSPHENAMINE REACTIONS

With a sterling brand of arsphenamine, bad reactions are exceptional. But, as they do occasionally occur, it is desirable, as pointed out by Greenbaum (*Ther. Gaz.* Oct. 15, 1924), to anticipate them.

Severe reactions, he recalls, are less frequent than in the early days of the therapy. "That the great incidence of reactions at that time was due to a lack of proper precautionary measures and of toxicity control tests of the manufacturers' products is certain, as a recent calculation of fatalities following arsphenamine and neoarsphenamine injections, by Meirowsky, shows (one in 13,000 arsphenamine and one in 162,000 neoarsphenamine injections).

The general prophylactic rules requiring observations before every injection of an arsenobenzene, particularly those given intravenously, such as making certain that the ampule is intact and its contents of average color and consistency, the patient properly prepared (fasting stomach) and studied, that the dose has been properly graduated for that patient and his tolerance as well as his particular syphilitic lesion (of great importance in visceral syphilis), solutions properly prepared, filtered and slowly injected, etc., are now quite generally known and require no emphasis at this time.

In addition to the usual supportive and eliminative treatment, daily intravenous injections of thiosinamine, three grains to the

dose, appear to exert distinct beneficial effects both subjectively and objectively. The drug acts quickly and the patient almost always expresses his appreciation of its benefit within several hours, although, due to the immediate elimination of the drug by the lungs, in the form of ethyl sulphide, there is a temporary bad taste in the mouth. Not only must it be started early but it must be given regularly, because a severe dermatitis, once installed, prevents intravenous medication (the method of choice), and also because skin cells, unlike liver cells, lack marked recuperative ability, particularly in this condition. By its use mild and moderate cases may be abruptly terminated; in most cases, itching is completely, or almost completely, controlled within twenty-four hours; in severe cases the duration is sensibly shortened. Since thiosinamine has been used in the Greenbaum clinic, no mild or moderate arsenobenzene dermatitis has progressed to the exudative, edematous, desquamative types occasionally seen. Good results have likewise been obtained with sodium thiosulphate both abroad and in America, but in his experience these results have not been as striking as with thiosinamine.

The secondary infection, in the severe cases, requires special attention. In the presence of any edema, irrespective of the cutaneous condition, rest in bed is essential.

The clinical case described below is a typical one, both as regards the symptomatology and the treatment.

A white male, aged twenty-four; secondary lues. Had received 9 intravenous injections of neoarsphenamine at weekly intervals. Following the ninth injection he developed a moderate, generalized pruritus. He was anxious to get his treatment and concealed from his physician the fact that he had pruritus. The nature of the conditions under which he received his tenth injection surely presupposes a severe dermatitis. Forty-eight hours after his tenth injection he developed edema of the face, severe enough to almost close his eyes, a generalized, angry-appearing, dull-red, erythematous eruption, fever, and an intermittent but marked pruritus. Progressive increase in severity of symptoms up until the fourth day, when thiosinamine was commenced.

Subjective and objective improvement was obvious within twenty-four hours. By the fifth injection there was a definite feeling of physical well-being. Itching had disappeared to the extent of fully 90 per cent. Desquamation began ten days after treatment. In three weeks the patient was normal.

## NEUTRAL ACRIFLAVINE FOR OPEN WOUNDS

Fish (*Inter. Jour. Med. & Surg.*, Sept. 1924) used this germicide in a large industrial clinic where lacerations, puncture wounds, finger infections and localized abscesses were commonly treated.

After cleansing the surface thoroughly with an alkaline solution, or simply with soap and water, depending on the condition of the wound on presentation, he applied ordinary sterile gauze, previously dipped in neutral acriflavine 1:100 solution. This was applied to the wound, dripping; in the case of a surface wound, simply laid on; and in a penetrating wound, packed in loosely. The part was then bandaged and left undisturbed for two days, after which the same dressing was repeated. At this time it was usually found that the wound had a healthy appearance.

At times the packing was left in longer, that is from three to seven days, in minor amputations for example, for which the germicide serves admirably. In one such, the packing was left in five days and when removed was dry and without perceptible odor, whereas packings left in for this length of time usually develop foulness. No infection developed in these amputation cases. Granulation and healing were observed to be more rapid than under other methods of treatment.

The germicide was also used in burn cases, with a change of dressings every 24 hours, and in extensive burns every 12 hours. Equally satisfactory results were here obtained.

After fifteen months of experience with neutral acriflavine, the doctor is convinced that it is reliable and free from irritant qualities, wherefore it can be used quite freely upon almost any wound.

## PRACTICAL HYDROTHERAPY

Anders, (*Jour. A. M. A.*, July 26, 1924) in chronic ailments, recommends the following measures.

**Nephritis.**—A daily tub bath at a temperature of 95° to 100° F. for 15 minutes, to free diaphoresis. After a month, hot to moderately cold douches to spine over the dorsal and lumbar regions may conclude bath. Sudorific baths, as advised, lessen renal congestion.

**Obesity.**—Cold baths at 70° F. followed by vigorous hand-rubbing. The bath should be brief and the temperature of the water not too low at start. Commence at 90° F. This treatment promotes oxidation.

*In heart cases.*—Daily cool or cold-mitten friction. The effervescent (Nauheim) bath at 95° F. for 5 to 8 minutes at first. Lengthen to 15 minutes with temperature reductions down to 85° F., if effect is favorable. Average course 3 weeks. Good effects are due to vasomotor stimulation, the heart muscle being invigorated and its nutrition improved, following an improved central as well as peripheral circulation. A noticeable decrease in the area of cardiac dullness, as shown by percussion, usually results. Avoid over-stimulation, evidenced by dyspnea, insomnia, palpitation and cyanosis. The bath may be combined with resistance exercises (Schott treatment).

*Rheumatism.*—Hot blanket packs for 30 minutes to free perspiration, followed by sponging or douching at 95° F. Reduce temperature daily by one or two degrees to about 85° F.; or cabinet hot-air baths followed by cool to cold applications.

*Neurasthenia.*—Tub baths at 95° F. at bedtime, from 15 to 20 minutes, are relaxing and restful. Tepid tub or sponge baths in a warm room at 90° F. to start, reducing by 1 or 2 degrees to 80° F. Follow by active friction of the skin, commencing at the feet. Fresh air for ten minutes while protected from chilling. In depressed cases, the wet pack and spinal douche.

*Tuberculosis.*—Cool to cold water to surface, with hand-mitten friction, beginning at 90° F. and reducing by one or two degrees to 80° F. Twice daily. Hand rubbings at room temperature followed by towels.

### JACK-KNIFE POSITION AFTER HERNIA OPERATIONS

The posture of the patient after an operation for hernia is usually neglected. If surgeons realized that they could reduce their recurrences materially, besides adding to the comfort of their patients, the jack-knife position would become a matter of routine for inguinal, femoral, umbilical and ventral hernias which presented difficulties in closing the fascial layers.

In inguinal hernia operations the best exposure is obtained by keeping the thigh extended until the deep sutures are ready to be tied, when it should be elevated, adducted and rotated inward. This reduces the distance between Poupart's ligament, the internal oblique and conjoined tendon from 25 to 50 percent, depending on the size of the opening, the variety of hernia, and the develop-

ment of the muscles. After the patient is returned to bed, his knees and shoulders should be elevated 25 to 45 degrees by means of pillows and a back rest. This position takes the strain off of the stitches during the process of repair, permits a broad firm union of fascial flaps, and reduces the percentage of recurrences. The jack-knife posture should be maintained as long as the patient stays in bed.—LEIGH F. WATSON, *Annals of Surgery*, August, 1924, pp. 239-241.

### HYPERTOXIC APPENDICITIS

Dr. E. St. Jacques (*Can. Med. Assoc. Jour.*, Sept., 1924, p 831) emphasizes the proposition that, while a classical case of acute appendicitis offers no difficulty of recognition to an experienced diagnostician, there are cases of this disease, often in its most dangerous forms, whose diagnosis is by no means easy.

Two cases are related in more or less detail, where an acute hypertoxic and gangrenous appendicitis was masked by symptoms of acute enteritis. One case recovered, following operation and a tardy convalescence.

The doctor calls attention in his summary to the facts that, in these cases, the abdominal pain is diffuse rather than localized (though it may have begun in the right iliac fossa); that the pulse is very rapid from the start, though the fever is moderate, or the temperature even subnormal; that the muscular rigidity is almost or entirely absent until general peritonitis sets in; and that the general condition of these patients is bad from the onset. He repeats with vigor the dictum, "There is no medical treatment for acute appendicitis", in view of its many dangerous complications, which can not be foreseen.

It is hoped that the points brought out in the above article will be stored away by every reader for future reference as they may save someone from the professional embarrassment and personal sorrow of seeing a patient die, who might have been saved by prompt surgical intervention.

Our experience has paralleled that of Doctor St. Jacques very closely, and after seeing a patient, who at the first visit showed a temperature of 98 degrees, moderate, general abdominal tenderness and a rapid pulse (in whom appendicitis was suspected but not diagnosed), die of generalized peritonitis, following an operation forty-eight hours later, during which a ruptured gangrenous appendix was found,

we have been on the alert for such cases, and have sometimes made the diagnosis of "acute surgical belly" and operated even though a definite preoperative diagnosis of appendicitis was impossible.

The doctor says nothing about the blood count, without which we feel that an accurate diagnosis in these cases is almost impossible.—Ed.

### FIRST SIGHT OF THE WORLD AT THIRTY YEARS

In the *Revista de Medicina y Cirugia*, of Havana, Cuba, for July 25, 1924, Dr. Horacio Ferrer publishes a very interesting case of a patient with congenital cataract who was given his vision by operation when nearly thirty years of age.

This patient's reactions upon seeing various objects for the first time are interestingly described.

At first, his delight was tinged with fear, and he was embarrassed at not being able to recognize the commonest objects until he had handled them, when his trained sense of touch at once informed him what they were, whereupon he examined them, visually, with the greatest interest.

He had no sense of perspective, so that his idea of the relative size of various objects depended wholly on their closeness to his eyes. While he was looking at Morro Castle, one day, the doctor held up his fountain pen close to the patient's eyes and asked him which was the larger, the pen or one of the towers of the castle, receiving the response that they were both the same size (the pen was six inches long, and the tower one hundred and fifty feet high).

He had no idea of the relative beauty of various objects. A lovely woman was no more pleasing sight to him than an old cart-horse.

After reciting many interesting details of this rather unusual case, Doctor Ferrer speaks of the question as to whether the sense of the presence of objects near at hand which the blind frequently possess is a special or "sixth" sense, or is obtained through one of the ordinary senses. His conclusion is that it is not an extraordinary sense but is obtained by the summation of the sensations received by all the other senses, attuned to unusually delicate impressions by cultivation, and interpreted, as a whole, by the blind man with, frequently, surprising accuracy.

### DANGERS OF TAXIS IN STRANGULATED HERNIA

Taxis is little used at the present time because of its dangers and the fact that there is a much lower mortality rate if operation is performed as soon as the diagnosis is made and without attempts at manual reduction. Contrary to the general opinion, if the hernia cannot be reduced in five minutes by moderate pressure, it is inadvisable to continue taxis longer. Taxis is aided in infants, children and adults by suspending them by their feet, head downward.

Taxis is contraindicated when the hernia has been down several hours; when the onset is acute and the symptoms severe; when previous attempts at taxis have failed; when the hernial coverings are edematous; when there are symptoms of prostration and shock, and when there are signs of ulceration and gangrene.

If taxis is apparently successful, the patient is not out of danger for several days and should be watched carefully for symptoms of reduction "en masse," hemorrhage, and delayed perforation of the intestine.—LEIGH F. WATSON, *International Clinics*, 1924, vol. 2, s. 34, pp. 217-219.

### INFANT FEEDING IN THE TROPICS

In an article entitled "The Use of Sweetened Condensed, Evaporated and Powdered Milks for Feeding Infants in the Tropics," by Dr. W. E. Deeks, of the Medical Department, United Fruit Company, New York, published in *The American Journal of Tropical Medicine*, March, 1924, the doctor gives a list of very valuable formulas for infant feeding, using condensed milk, both sweetened and unsweetened, and powdered milk, together with valuable suggestions as to their use, and sums up the situation by saying that, in tropical countries, it is almost impossible to procure fresh cow's milk of a sufficient degree of purity to be suitable for infant feeding; and, where it can be procured, the cost is prohibitive for a large number of people, while very adequate and satisfactory formulas can be prepared from the various preserved milks above listed.

He includes in the article a short discussion of the various symptoms which may worry mothers of nursing babies and a brief list of directions for the sanitary handling of formula feedings.

He suggests that, if some enterprising milk manufacturer would increase the sugar content of the milk to 10 percent by the addition of milk sugar, cane sugar or dextri-maltose, and then evaporate it down to 40 percent and put it up in cans of one, four, eight, twelve and sixteen ounces, it would greatly simplify the problem of infant feeding by these methods, as then all that would be necessary would be to dilute the preparation with water, according to the age of the child, and there would be practically no loss in the unused milk from an open can, after the second week. If the butter fat could be increased to 5 percent before being evaporated, the result would be ideal. The same method probably could be carried out in the manufacture of powdered milk.

#### ACID SODIUM PHOSPHATE IN THERAPEUTICS

H. J. Vetlesen (Norsk. mag. for. Lægev., 1924, May, 337) speaks very highly of acid sodium phosphate ( $\text{NaH}_2\text{PO}_4$ ) as a therapeutic agent. He has obtained good results in goiter simple and exophthalmic, and finds that the drug acts as a general tonic, the phosphoric radical promoting the vital functions in general. It restores the nervous balance, tranquilizes the heart, and slows the pulse rate, while the goiter ceases to enlarge and becomes smaller and smaller.—*The Prescriber*, Oct. 1924.

#### A NEW TEST FOR TYPHOID FEVER

The iodine test for typhoid fever, as introduced some years ago by Petzetakis, was described in *The Prescriber*, Sept., 1922 p. 297. A few drops of 5-percent tincture of iodine are added carefully to 15-20 Cc. urine in a test tube so that the liquids do not mix. A positive reaction is indicated when the upper portion of the urine changes to a yellowish gold color. The reaction is not disturbed by the presence of albumin sugar, etc., and is said to be positive several days in advance of the Widal test.

E. Moretti (Riforma med., 1923, Nov. 19, 1116) has devised a modification of this test as follows: 25 Cc. of urine is saturated with 20 Gm. or ammonium sulphate crystals; after 15 minutes this is filtered and diluted with two parts of water. To 10 Cc. of this diluted filtrate is added 2 Cc. of sodium hydrate solution

(10 percent) and one drop 5 percent tincture of iodine. The solution is then shaken, and a positive result is shown by the appearance of a persistent golden yellow color.

Moretti tried this test in 100 cases of typhoid fever: in 95 it was positive, and in only 5 (very mild cases) it was negative. In 2 cases of paratyphoid A it was negative, and in 2 out of 3 cases of paratyphoid B it was positive. It is always positive in the first week. In pulmonary tuberculosis with cavity formation it is always positive, and often so in pneumonia and in measles. It thus corresponds with the diazo-reaction, but is more useful on account of its earlier appearance and greater constancy.—*The Prescriber*, Oct. 1924.

#### iodo-BISMUTH IN SYPHILIS

Dr. Frederic S. Mason, Bellevue Hospital, New York, contributes a brief but interesting article on the use of bismuth salts in syphilis to *The Prescriber* for October 1924. He states that it is in France that bismuth has found the greatest number of partisans for there extensive clinical evidence has established conclusively its value as a powerful antiluetic agent.

French syphilographers believe the quinine x-iodo-bismuth to be equally as efficient as the arsenobenzols and mercurials, and now recommend it as the preparation of choice in the routine treatment of primary, secondary, and tertiary lues.

There can be no doubt that x-iodo-bismuth is very active, since chancres, roseolar eruptions, mucous patches, papular syphilides and condylomata disappear rapidly under its influence and Wasserman reactions soon become negative after the intramuscular injections.

Spirochetes can no longer be found in condylomata or ulcerated chancres while the headaches usually cease shortly after the first injection.

*Dose and Indications for Use.*—X-iodo-bismuth is prescribed as an oily sterile suspension. It is necessary simply to sterilize a long strong 19 to 22 calibre needle such as is used for injection of salicylate of mercury (sterilization can be done in a test tube) and withdraw through the rubber seal of the container the amount required. Each cubic centimeter should represent 10 centigrams of pure x-iodo-bismuth. The dose is one or two Cc. every third day, giving from 15 to 20 doses for a course.

# Among the Books

---

## THOMSON: "GONORRHEA"

Gonorrhea. By David Thomson, O.B.E., London: Oxford Medical Publications. 1923. Price \$12.75.

This is another of the famous Oxford Medical Publications monographs which adds luster to English scientific medicine. It is a highly scientific study of an important affection, which remains to this day the *bête noir* of the general practitioner and the specialist as well.

The book of 500 pages of text is divided into six parts with a total of 51 chapters, some of which are from the pens of noted British specialists.

The parts deal with the bacteriology, anatomy, immunity, therapy, prophylaxis and abortive treatment and the clinical manifestations and the practical modern methods of treatment.

Let it be understood that, in these principal subdivisions, all problems of gonorrhea are treated exhaustively and that the entire book, the practical as well as the scientific, is the result of much research work.

It goes without saying that any practitioner, be he specialist or not, who is deeply interested in gonorrhea, will find this book a ready means for earnest study and reference.

## PETTY: "DIABETES"

Diabetes. Its Treatment by Insulin and Diet. A Handbook for the Patient. By Orlando H. Petty, B. S., A. M., M. D., F. A. C. P. With Several Illustrations. Philadelphia: F. A. Davis Company. 1924. Price \$1.50.

There is no disease in which the intelligent, consistent and continuous cooperation of the patient is more necessary to satisfactory results than is diabetes.

It is, of course, possible for the doctor to give detailed and elaborate instructions to the patient in each case, but the busy practitioner has a tendency to do this in the briefest manner possible and it sometimes becomes perfunctory. Moreover, unless the instructions are carefully written out, the details will be promptly forgotten by the patient and the value of the instructions largely lost. \*

The present volume is a very successful effort to fill the need for a book of complete and authoritative instructions to the diabetic for the home care of his own case.

It begins with a brief discussion of what diabetes is, how it is diagnosed, its cause and prevention, and includes a description of how the patient may test his own urine for sugar and thus keep track of the results he is getting from the diet prescribed.

The discussion of foods and their relation to diabetes is very thorough and the tables of caloric values, acid and basic values, and other matters which pertain to the diabetic's diet are very full and clear. In the back of the book, there are a number of instructive, but simple, menus, specimen diet blanks and several pages of recipes for diabetic foods.

With the advent of insulin, the necessity for the intelligent understanding and cooperation by the patient has been redoubled, for satisfactory results from the insulin treatment can scarcely be obtained, outside of a hospital, unless the patient knows how to give it to himself. There is a satisfactory chapter on the home administration of insulin.

And in all, the importance of this book in the hands of the patient can scarcely be overestimated by the physician who has occasion to treat cases of diabetes.

## PHILLIPS: "SPECTACLES AND EYE-GLASSES"

Spectacles and Eyeglasses. Their Forms, Mounting and Proper Adjustment. By R. J. Phillips, M. D. Fifth Edition, Revised. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1923. Price \$1.50.

This little volume is written for the man who not only does refraction work but fits the glasses, also.

It has no word to say about lenses, and deals wholly with the selection, fitting and adjustment of the frames which support the lenses.

The book should be of the greatest assistance to the class of workers for which it is intended, and, so far as my experience goes, is almost unique in its field and much needed.

**DAVIS: "NEUROLOGIC DIAGNOSIS"**

Neurologic Diagnosis. By Loyal Edward Davis, M. S., M. D., Ph. D. in Surgery. Illustrated. Philadelphia: W. B. Saunders Company, 1923. Price \$2.00.

There has, unfortunately, been a tendency among the teachers in a good many medical schools to forget that all parts of the curriculum are intended to fit the student to care, intelligently and scientifically, for those who are ill. The teachers, in the earlier years, have sometimes failed to show the students how the work in anatomy, physiology, histology, etc., hooks up with the clinical studies which are to come later; and the clinicians, in the later years, have not laid sufficient stress on the absolute necessity of a broad and sound knowledge of the scientific fundamentals to intelligent diagnosis and treatment.

The book under discussion is a very successful attempt to bridge this gap in connection with a field of practice which is, it is feared, a *terra incognita* to many physicians.

The first third of the book is taken up with a brief and readable discussion of the anatomy and physiology of the central and autonomic systems, illustrated with capital diagrams. The latter two-thirds contains 29 well-chosen case histories, illustrating all the various lesions mentioned in the earlier pages. Each history is followed by a list of questions, which should be answered by the student before reading the discussion of the case, which comes next, in order to derive the most benefit from the work.

It is believed that there has been a distinct need for a book of this character, and that no student or practitioner who peruses it thoroughly and thoughtfully can fail to add materially to his usefulness to his patients and the community thereby.

**BROOKS: "DIAGNOSTIC METHODS"**

Diagnostic Methods. By H. T. Brooks, A. B., M. D., F. A. C. P. Fourth Edition. Illustrated. St Louis: C. V. Mosby Co. 1923. Price \$1.75.

This little book deals almost entirely with laboratory diagnostic methods, though there is a good outline of history-taking at the beginning.

The book is practically a laboratory manual, and is exceedingly brief and concise. Only one or two procedures are outlined for each examination.

The man who already has a good laboratory manual will gain nothing from this, but for those who have none it will do very well.

**EGGLESTON: "PRESCRIPTION WRITING"**

Essentials of Prescription Writing. By Cary Eggleston, M.D. Third Edition, Revised. Philadelphia: W. B. Saunders Co. 1924. Price \$1.50.

The medical student always needs detailed and accurate instruction in prescription writing, and the druggists tell us that many practicing physician would be none the worse for some instructions in these matters. The book in hand will be of great help to anyone whose knowledge of prescription writing lacks detail and accuracy, for a well and correctly written prescription is, to a certain extent, an index of the doctor's professional status.

This little book deals with Latin grammar and the grammatic construction of prescriptions; compares the metric and apothecaries' system; details the practice of prescription writing; gives a table of drug dosages, and lists and describes the various vehicles, incompatibilities and modes of administration. The last chapter contains a number of pages of practice prescriptions.

**MAY: "DISEASES OF THE EYE"**

Manual of the Diseases of the Eye. For Students and General Practitioners. By Charles H. May, M.D. Eleventh Edition. Revised. Illustrated. New York: William Wood and Company. 1924. Price \$4.00.

There are many elaborate and exhaustive treatises on diseases of the eye intended for the use of oculists; but there is only one satisfactory textbook on ophthalmology for the general practitioner.

May's text has been frequently revised and reprinted (the present eleventh edition runs to the one hundred and fifty thousands) and has been translated into most foreign languages, including the Chinese.

In the present edition, all chapters in the book have been carefully gone over and brought up-to-date and some new material, plates and illustrations have been added.

The book continues to stand alone in its field and no general practitioner's or student's medical library is complete without it.

**GARDINER: "SKIN DISEASES"**

Handbook of Skin Diseases. By Frederick Gardiner, M.D. Second Edition. New York: William Wood & Co. 1924. Price \$3.50.

The general practitioner is frequently faced by the situation that, when he meets with a case of one or other of the diseases usually

treated by a specialist, the textbooks most readily available are such as are intended for specialists, and he must search through a large amount of technical material to find the practical points on diagnosis and treatment which he needs.

To such practitioners and to students, the practical handbook is very valuable, and the present volume is an excellent example of the type.

The author is a teacher of authority, in Edinburgh, and with his purpose of general utility clearly before him, has confined his attention exclusively to the consideration of the skin diseases which are of common occurrence.

In his introduction he deals very briefly with the anatomy and clinical pathology of the skin, and considers the various classes of medicaments, external and internal, which are of benefit in such cases.

The rest of the book considers the commoner skin diseases, grouping them, as regards etiology or location, so as to facilitate study, and paying especial attention to diagnosis and treatment.

Half-tone illustrations are used rather freely throughout the book, and the present (second) edition is materially improved by the addition of twelve excellent full-page color plates of commoner eruptions.

As a quick and ready reference book, for the busy physician or student, the book is recommended.

#### **HORNIBROOK: "CULTURE OF THE ABDOMEN"**

The Culture of the Abdomen. The Cure of Obesity and Constipation. By F. A. Hornibrook. Preface by Sir William Arbuthnot Lane. New York: William Wood & Company. 1924. Price \$2.25.

There is scarcely a physician who has not one or more cases of obesity who are really eager to return to their youthful figure and willing to work at it. There are none of us who have not many cases of chronic constipation, urgently in need of relief, and, in these cases, we all fully realize that the use of laxative drugs is merely a palliative procedure.

Hornibrook's "Culture of the Abdomen" gives an extremely valuable, brief and practical discussion of methods for the permanent correction of obesity and constipation. He discusses the importance of free elimination and correct posture, with numerous illustrations. Enteroptosis and thinness, and flat feet, are given brief chapters and practical

suggestions as to postoperative exercises are included. The latter part of the book consists of a careful description with adequate illustrations of a very simple system of exercises which should not occupy more than ten minutes a day, and which, if regularly and persistently carried out, can not fail to accomplish the purpose to which they are directed.

This little book, which can be read in an hour, should be in the library of every physician, and it is written in such a simple style that it can profitably be recommended to his obese and constipated patients as a textbook and outline of the régime which they should follow in order to promote their restoration to health.

#### **CAMPBELL: "MODERN TREATMENT"**

Handbook of Modern Treatment and Medical Formulary. A Condensed and Comprehensive Manual of Practical Formulas and General Remedial Measures. Compiled by W. B. Campbell, M.D. Seventh Revised and Enlarged Edition by John C. Rommel, M.D. and C. E. Hoffman, Ph.M. Philadelphia: F. A. Davis Company. 1924. Price \$5.00.

We occasionally have inquiries from physicians for the reference to some work which can be kept on the office desk for ready consultation when time does not suffice for looking up references in the large textbooks on medical practice and therapeutics. The present volume adequately fulfils such a condition. This (seventh) edition is greatly enlarged over the preceding one and contains a large amount of new material.

The book consists not only of many useful formulas but also will serve to show many conditions and other ideas that might not readily occur to one without some kind of a reminder. In addition to the formulas, there are brief and pointed discussions of the diseased conditions under consideration, which add materially to the book's value.

Prescriptions are written both in the apothecaries' and metric systems and narcotic and liquor prescriptions are appropriately indicated.

To those who desire a ready reference work, this book is heartily recommended.

#### **GILLETT: "NUTRITION WORK"**

Adapting Nutrition Work to a Community. By Lucy H. Gillett, Superintendent of the Nutrition Bureau of the New York A. I. C. P. Issued by the New York Association for Improving the Conditions of the Poor. 105 E. 22nd St., New York City. Price 25 cents per copy.

The experience of the New York Association for Improving the Conditions of the Poor has disclosed with increasing clearness the fact that ill health is indissolubly linked up with and is, in a very large percentage of cases, the forerunner of poverty. Serious and continued interference with the health stability of a family is almost certain to lead to an interference with their economic stability.

It has also been increasingly clear from general experience that good nutrition is very definitely correlated with good health and that defective nutrition is equally definitely correlated with both ill health and poverty. The Association has, therefore, conceived it as a part of its definite function to deal with the problem of good nutrition. It secured, for example, as long ago as 1864, legislation looking toward a purer milk supply. In 1906 it established the New York Milk Committee which rendered important service in connection with nutrition, and since then it has devoted increasing attention to good nutrition.

Some six years ago the Association opened Mulberry Health Center in the heart of a congested Italian district in New York City. Since that date it has endeavored by intensive methods to discover what effects can be secured in changing the nutritional habits of the people in a given district. This report describes the methods used by the Association and gives the results of these efforts with the purpose of making them available to others who are working on the same problem. Anyone who is working along these lines will find the report very interesting and valuable.

#### SIEMENS AND BARKER: "RACE HYGIENE AND HEREDITY"

Race Hygiene and Heredity. By Hermann W. Siemens, M. D. Translated and Edited by Lewellys F. Barker, M. D. Illustrated. New York and London: D. Appleton & Company. 1924. Price \$2.00.

How many physicians, in making the first examination of a patient, inquire carefully into the family history? And how many others, having so inquired, are in a position to make use of the information thus obtained?

The importance of the study of human biology for forward-looking health officials and earnest practitioners of medicine is, to our thinking, much underestimated. This is not a dry subject but, if followed up until one gains an insight into its details, becomes of the highest interest. The little book with the above title outlines briefly the study of

heredity, citing the work of Lamarck, Darwin, Weismann and others, and then proceeds with a short review of the technic of the hereditary transmission of physical characters. In the chapter on "Degeneration", the dangers of the future of our race, from permitting the higher types of familial stocks to die out because of a relative infertility, are dwelt upon.

The chapter on "Race Hygiene" shows how the stock may be improved by diminishing the fertility of the low-grade individuals and augmenting that of the high-grade. The chapter on "Birth Polity" outlines some of the means by which these desirable ends may be arrived at, and sets before one an interesting, though perhaps distant, goal.

On the whole, the book is a well-founded protest against "race suicide" and, while somewhat technical in its presentation (as it needs must be), it is so brief that it can be read with profit by the busy practitioner and will give him a working foundation for further eugenic studies.

#### CAMPBELL: "MENTAL DISORDERS"

A Present-Day Conception of Mental Disorders. By Charles Macfie Campbell, M. D. Cambridge: Harvard University Press. 1924. Price \$1.00.

Who is the insane man? This question is of the most delicate. So many of us seem, sometimes, to be on the borderline that we must tread softly here.

The book under consideration does not deal with the frankly insane, who require institutional care, but with that rather large class of persons who present one or more evidences of more or less marked deviation from what are generally understood to be the standards of normality.

The author calls attention to the fact that purely physical symptoms may be the result of emotional or mental disturbances, and that irregularities of temper and disposition frequently call as loudly for the attention of the physician as irregularities of the bowels and kidneys; he also makes it clear that these ailments are no more mysterious nor disgraceful than other human maladies and, like the others, are more amenable to treatment if freely considered and treated in their incipency.

The book is small (a transcript of a lecture—one of the "Harvard Health Talks") and written in an easy and pleasing style. It is well worth the time it takes to read it and the price it costs to own it.

## Current New Literature

To assist doctors in obtaining current literature published by manufacturers of equipment, pharmaceuticals, physicians' supplies, foods, etc., **CLINICAL MEDICINE** will gladly forward requests for such catalogues, booklets, reprints, etc., as are listed from month to month in this department. Some of the material now available in printed form is shown below, each piece being given a key number. For convenience in ordering our readers may use these numbers and simply send requests to this magazine. Our aim is to recommend only current literature which meets the standards of this paper as to reliability and adaptability for physicians' use.

Both the literature listed below and the service are free. In addition to this, we will gladly furnish such other information as you may desire regarding additional equipment or medical supplies. Make use of this department.

- |   |  |
|---|--|
| <p>L-21 Surgical Operations, for the Surgeon and General Practitioner by Dr. R. B. Waite.</p> <p>L-22 Biological Products for Human Use. With Indications for Use, Dosage, Price List, etc. Gilliland Laboratories.</p> <p>L-25 The Intensive Iodine Treatment of Tuberculosis. 8-page booklet. Burnham Soluble Iodine Co.</p> <p>L-28 Grape Juice as a Therapeutic Agent. An attractive book published by The Welch Grape Juice Co.</p> <p>L-29 Oral Health, and the Relation of Diseases of the Teeth and Gums (Pyorrhea) to Diseases of the Body. 24-page booklet. The Deninol &amp; Pyorhocide Co.</p> <p>L-30 Helping the Cell to Help Itself. 32-page booklet by The Alkalol Co.</p> <p>L-31 The Romance of Digitalis—The Story of Its Discovery. 12-page booklet by Hoffman-La Roche Chem. Co.</p> <p>L-32 Local Inflammation and Its Rational Treatment. 16-page booklet. The Dionol Co.</p> <p>L-41 Specific Urethritis. 16-page booklet. Riedel &amp; Co.</p> <p>L-49 "Vichy" Natural Mineral Waters. Henry E. Gourd.</p> <p>L-51 Treatment of Syphilis. 32-page booklet. Dermatological Research Laboratories.</p> <p>L-55 Your Prestige and Profit. 8-page booklet. The Carroll Dunham Smith Pharmacal Co.</p> <p>L-58 A Symposium on Yeast. 24-page booklet. The Fleischmann Co.</p> <p>L-60 Formula B. The Guardian Lotion. The modern antiseptic astringent and deodorizing lotion for the mouth and skin. 8-page booklet. The Pepsodent Co.</p> <p>L-63 Arsenauro and Mercauro. 100-page booklet. Parmele Pharmacal Co.</p> | <p>L-64 Home Economics Department—Eat Wisely and Keep Well. Kellogg Co.</p> <p>L-70 Are Pessaries of Any Value in Malpositions of the Uterus. 4-page folder. Huston Bros. Co.</p> <p>L-71 Goitre Special. 4-page folder. Columbus Pharmacal Co.</p> <p>L-84 Storm Binder and Abdominal Supporter. 4-page folder. Dr. Katherine L. Storm.</p> <p>L-90 Sklar's E. N. T. Specialist's Outfit. 8-page folder. J. Sklar Mfg. Co.</p> <p>L-92 New Light on an Old Remedy. 12-page booklet. Century National Chemical Co.</p> <p>L-99 Flavor It With Coffee. By Mrs. Ida C. Bailey Allen. 16-page booklet by Joint Coffee Trade Publicity Committee.</p> <p>L-103 Therapeutic Use of Chlorine in the Treatment of Respiratory Infections. No. 61. 8-page folder. Wallace &amp; Tiernan.</p> <p>L-104 Petrolagar (Deshell). What It Is. 8-page booklet. Deshell Laboratories.</p> <p>L-132 Anti-Dropsic Tablets. Mutual Supply Co.</p> <p>L-147 Eco Products—Thermometers, Needles, Syringes, Elastic Bandages and Veterinary Products. Eisele &amp; Co.</p> <p>L-149 Continental Scale Works. 24-page booklet. Continental Scale Works.</p> <p>L-150 Price List—Pharmaceutical Dept. 8 pages. Armour &amp; Co.</p> <p>L-172 Phyllosan in Anemia, Chlorosis and Wasting Diseases. 4-page booklet. Merck &amp; Co.</p> <p>L-177 Prometheus Sterilizers, etc. 4-page folder. Prometheus Electric Corp.</p> <p>L-194 Ninth Edition of Electro Surgical Instrument Co. catalogue. 80 pages.</p> <p>L-198 Pluto Water. Its Medicinal Values. 16-page booklet. French Lick Springs Hotel Co.</p> |
|---|--|

- L-207 McDannold Surgical and Gynaecological Chair. Descriptive Folder. A. McDannold.
- L-211 Fibrogen. 8-page booklet. Wm. S. Merrell Co.
- L-222 Rabies Vaccine. 24-page booklet. Parke, Davis & Co.
- L-224 Dependable Pharmaceutical Products. 208-page price list. Zemmer Company.
- L-227 The Doctor's Factotum. Arlington Chemical Co.
- L-228 For the Treatment of Syphilis. 15-page booklet. Swan-Myers Co.
- L-231 Instant Relief for Cold in the Head and Sore Throat, Hay Fever and Summer Colds. 4-page folder. Schoonmaker Laboratories.
- L-233 The New Antiseptic Dye, Acriflavine. 12-page booklet. Pitman-Moore Co.
- L-235 Constipation. Its Rational and Physiological Treatment. 4-page folder. Wm. R. Warner & Co., Inc.
- L-236 The Glycerophosphates. 8-page folder. Smith, Kline & French Co.
- L-237 Information for the Medical Profession about Bovinine. 36-page booklet. The Bovinine Company.
- L-238 Ethical Medicinal Specialties. 8-page booklet. A. H. Robins Co.
- L-242 The Endermic Treatment of Febrile Conditions. 24-page booklet. Pneumophthysine Chemical Co.
- L-243 Useful Information for the Nurse. 24-page booklet. Chas. H. Phillips Chemical Co.
- L-244 Pepsodent and Soft Oral Tissues. 8-page booklet. Pepsodent Co.
- L-249 A Sinusoidal Manual, by T. C. Cornell, M. D. 54-page booklet. McIntosh Electric Corp.
- L-251 Pulvis Alkantis. 4-page folder. Lafayette Pharmacal Co.
- L-255 Lunosol, by Herman Hille, Ph.D. 16-page booklet. Hille Laboratories.
- L-257 30 Milliampere Radiographic Unit, Type "S". 10-page booklet. H. G. Fischer & Co., Inc.
- L-260 Calcium Deficiency and Hay Fever. 4-page folder. The Drug Products Co.
- L-268 Supporters, Trusses and Elastic Bandages. 16-page booklet. Hall & Cary Weaving & Belting Co.
- L-269 The Quartz Lamp. 8-page booklet, issued monthly. Hanovia Chemical Co.
- L-270 Manometer. 8-page folder. Becton, Dickinson & Co.
- L-271 Pharmaceutical Preparations of Established Merit. 11-page booklet. E. Bilhuber, Inc.
- L-272 Borchardt's Malt Products. 4-page folder. Borchardt Malt Extract Co.
- L-273 Quartz Lamp Equipment. 8-page folder. Burdick Cabinet Co.
- L-274 Pneumonia Sero. 4-page folder. California Endocrine Foundation Laboratories.
- L-275 Clinical Data on Campho-Phenique. 4-page folder. Campho-Phenique Co.
- L-276 Testogan and Thelygan. 8-page booklet. Cavendish Chemical Corp.
- L-277 The Treatment of Gynecological Disorders with the Two Distinct Hormones Isolated from the Ovary. 4-page folder. Ciba Co., Inc.
- L-278 The Use of Dryco in Infant Feeding and for the Acutely Ill & Convalescent. 16-page booklet. Dry Milk Co.
- L-279 Lipiodine "Ciba" by Dr. J. Laborde. 16-page booklet. Ciba Co., Inc.
- L-280 Fischer Accessories. Catalog No. 14. 100-page booklet. H. G. Fischer & Co., Inc.
- L-281 Enesol. Specific Arsenico-Mercurial Treatment of Syphilis. 32-page booklet. E. Fougere & Co.
- L-282 Neurasthenia. 16-page booklet. The Harrower Laboratory, Inc.
- L-283 Diabetes Mellitus by Henry R. Harrower, M.D. 16-page booklet. The Harrower Laboratory, Inc.
- L-284 Terraline and its Combinations. 4-page folder. Hillside Chemical Co.
- L-285 Malted Milk the Best Medium for Barium Sulphate Suspension in Roentgenologic Diagnosis. Descriptive card. Horlick's Malted Milk Co.
- L-286 Huston's Washable "Abdominal Supporters." Descriptive folder. Huston Bros. Co.
- L-287 The Intravenous Treatment of Malaria by B. S. Wyatt, M. D. 4-page reprint. Intravenous Products Co. of America, Inc.
- L-288 The Calcreose Detail Man. 16-page booklet. Maltbie Chemical Co.
- L-289 Matthews' Selected List of the Latest Current Authorities in Medicine. 4-page folder. L. S. Matthews & Co.
- L-290 Anemia and Malnutrition. 4-page folder. The Mayson Laboratory.
- L-291 Merck's Specialties. 32-page booklet. Merck & Co.
- L-292 Epidemiology and Public Health. Descriptive folder. C. V. Mosby Co.

# The Engeln Mobile Diatherm



*A*N ADVANCED EQUIPMENT which embodies many very evident advantages for Office and Institutional work. The Engeln Mobile Type Diatherm is exceptionally attractive in appearance, quiet and smooth in operation and capable of continuous heavy-duty performance. Ask for details

**THE ENGELN ELECTRIC CO.**

*X Ray and Physiotherapy Equipment*  
CLEVELAND OHIO

# A Big Problem

¶ The backward child—as well as the defective, or abnormal child—presents one of the most difficult problems in medicine, and often epilepsy adds to the complexity of the problem. However, such children, including cases of idiopathic epilepsy, have been cured by proper organotherapy.

¶ If the diagnosis does not reveal definite changes in the cerebral cortex, the child undoubtedly is "hypocrine" and in need of pluriglandular treatment.

¶ Since the thyroid, pituitary, and thymus are related in the causation of developmental dystrophies, a pluriglandular combination is indicated in their treatment. Such a remedy is provided in

## ANTERO-PITUITARY CO. (HARROWER)

Prescribe one sanitablet t.i.d. for four out of every five weeks over a period of at least three months.

Send for the new booklet,  
*"Epilepsy and the Endocrines"*

THE HARROWER LABORATORY, Inc., Glendale, California

An illustration of a woman in a long white dress standing next to a young girl in a white dress. The girl is standing at a pedestal sink and drinking from a glass. A bottle of TAVORIS is on the sink. The background is dark with the word 'TAVORIS' in large, stylized letters.

**TAVORIS**  
MEANS  
CLEAN AND HEALTHY  
MOUTHS  
A GOOD HABIT  
TAVORIS CHEMICAL CO.  
MINNEAPOLIS, MINN.

